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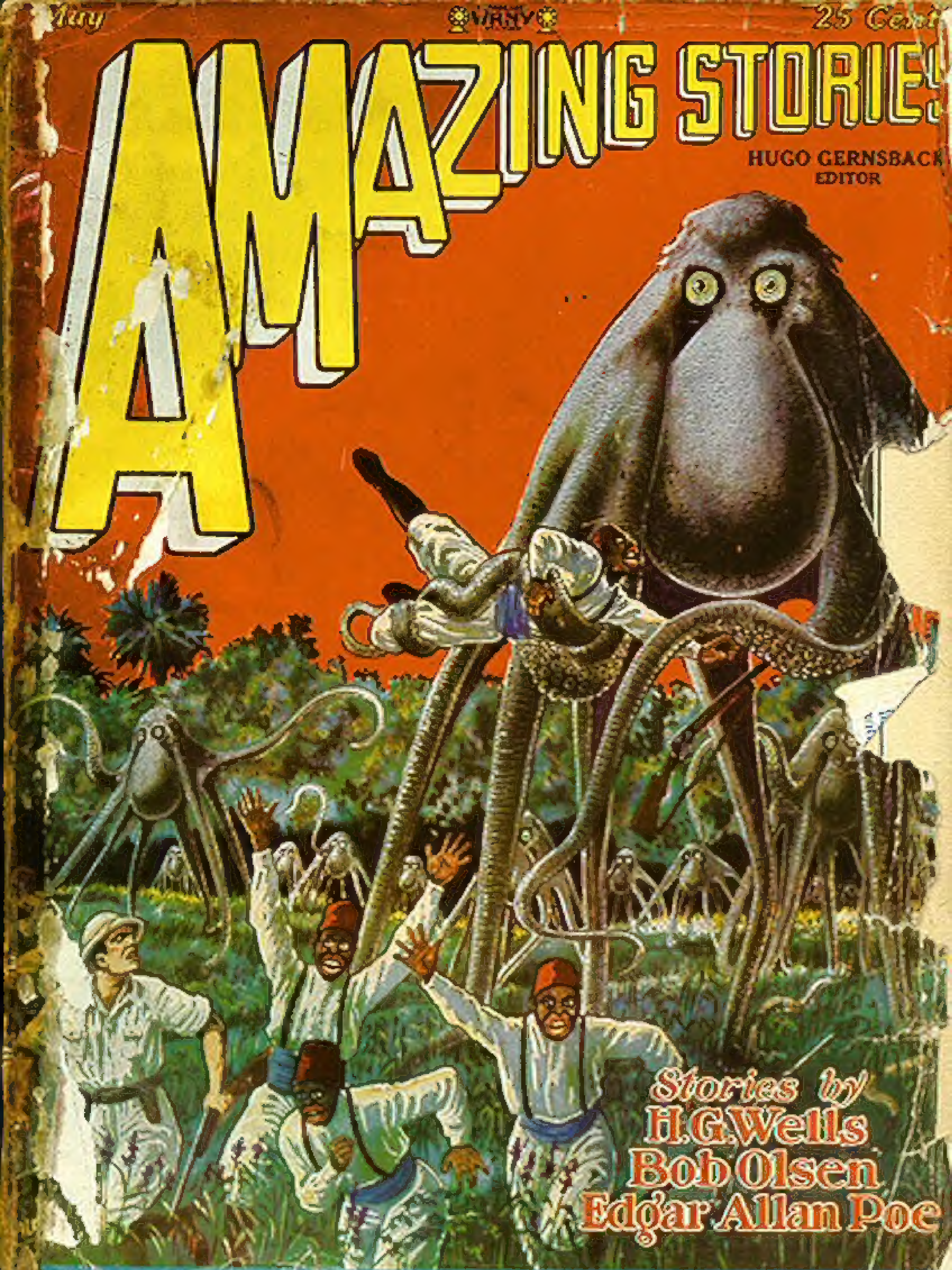

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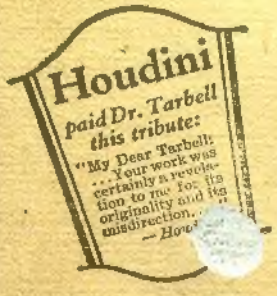
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AMAZING STORIES

May, 1928
Vol. 3, No. 2

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Our Cover

this month depicts a scene from the story entitled, "The Octopus Cycle," by Irvin Lester and Fletcher Pratt, in which the small group of natives, headed by the American scientist and a Frenchman, are fleeing from the scene of battle against a highly organized army of enormous animals of the mollusk order. Several of the natives are caught up in the tentacles of the octopuses, only to vanish almost instantly.

In Our Next Issue:

THE GOLDEN GIRL OF MUNAN, by Harl Vincent. "Necessity is the mother of invention." Hatred, or a lust for revenge, also enables a person to perform wonders. What a very few scientists, exiled with a small group of radicals, finally invent on a small island off in the uncharted seas, is graphically told by our new author, who not only has a vivid imagination, but, being an engineer of high standing, has an adequate amount of scientific knowledge from which to draw.

BARON MÜNCHHAUSEN'S SCIENTIFIC ADVENTURES, by Hugo Gernsback. Mars, according to most scientists, is an almost inexhaustible source of interest, and our friend, the Baron, being avid for interesting information and experiences, and having a knack for learning everything worth while knowing, continues, in his own manner, to tell us about the cities of Mars and how the planets look, as seen through the powerful Martian telescopes. He also advances an entirely new theory as to how the Martians might make life bearable on their desert planet .

THE BLUE DIMENSION, by Francis Flagg. Of course, you will remember Mr. Flagg's past stories, "The Master Ants" and "The Machine Man of Ardathia." In "The Blue Dimension," he has produced a real thriller. Here he takes us to another plane; a different world, and it is a most convincing story, too. Don't miss it, by any means.

THE INVISIBLE MAN, by H. G. Wells. While there have been many battles fought in our Discussions Department as to certain Wells' stories, the editor makes the prediction that "The Invisible Man" will be acclaimed by all of the readers of AMAZING STORIES. "The Invisible Man" no doubt is a scientifiction story, plus. It is one of those stories that is well nigh perfect. Of all the "invisible" type of stories ever written, anywhere, we unhesitatingly say this is the best and by far the most scientific.

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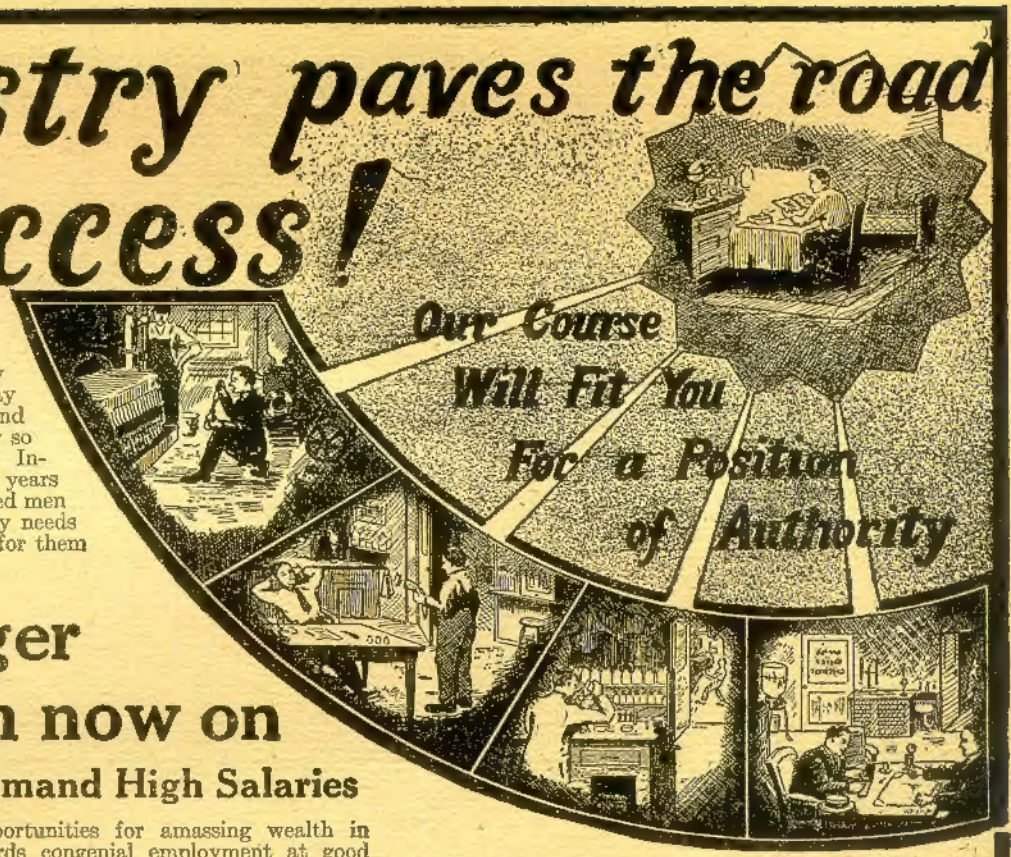
Chemistry paves the road to Success!



Some people measure success in terms of money and others in degree of knowledge and culture. Chemistry is the one uncrowded profession today that offers both. America, always a land of amazing opportunities, is especially so now in the field of applied Chemistry. Industries have developed within eight years more rapidly than the output of trained men to conduct them. Every big industry needs chemists and there is a real demand for them immediately.

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I am but half-way through your course and am certain that I have saved my Company many times the cost of the course and raised myself in the shareholders' estimation. The knowledge obtained has its immediate practical application and I do not hesitate in saying your course and the personal attention you give is invaluable to the practical man in any business where chemistry plays a part. You may use this letter and my name and address to the furtherance of your good work.

JOHN WALTER.

I have not written since I received the big set. I can still say that it far exceeded my anticipations. Since I have been studying with your school I have been appointed chemist for the Scranton Coal Co., testing all the coal and ash by proximate analysis. The lessons are helping me wonderfully, and the interesting way in which they are written makes me wait patiently for each lesson.

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VOLUME 3

AMAZING STORIES

THE MAGAZINE OF SCIENTIFICTION

MAY 1928 No. 2

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C. A. BRANDT, *Literary Editor*

Editorial and General Offices: 230 Fifth Avenue, New York, N. Y.

Extravagant Fiction Today - - - - - - - - - Cold Fact Tomorrow

FACTS OUTFICTIONED

By HUGO GERNSBACK

AS we read the average scientifiction story, particularly of the class where the hero is sending power by means of some "impossible" ray and does other probably "impossible" and certainly extravagant things, we sometimes are apt to smile and marvel at the audacity of the author. We take it good-humoredly, however, because we know in our souls, that such things will never come about. As a matter of fact, many people who read such stories are prone to vent their exasperations—and frequently in no uncertain manner.

On the other hand, I maintain that the average fiction writer now seems entirely too tame and will have to draw a great deal more on his imagination if he is to keep going. The reproach of the present day fiction writer ten years hence probably will be ridicule, not because he overshot the mark, but rather because he undershot it considerably. And so our present day reader snorts with disgust at the once incredible exploitations of Jules Verne and H. G. Wells, written years ago. Since then science and progress have caught up with both Wells and Verne to an astonishing degree; what was audacious fiction then, is so much a reality today, that some of their writings no longer make good reading, but actually sound commonplace and trite.

Many writers in the past have written about the queer and so-called "impossible" effects to be had with future unknown rays and unknown waves, but none of these authors probably was prepared to write of the "absurdities" which now have become facts. In a current issue of RADIO NEWS, there will be found an article entitled "High-Frequency Magic in the Radio Laboratory." These astounding experiments were made recently by no less than the research scientists of the General Electric Company at Schenectady. A new vacuum tube has made it possible, for the first time, to combine ultra-high frequencies with high power, hitherto available only for the longer wavelengths. The new tube works on 50,000 kilocycles (6 meters), with a power of 15 kilowatts and when the tube begins to operate, the following are the altogether astounding things that happen:

Men who work near the apparatus immediately notice a distinct warming effect, although nothing touches them. The human temperature is increased to nearly 100 degrees Fahrenheit in about fifteen minutes; the experiments were discontinued when the body heat reached that temperature. Mind you, the room temperature stayed the same—the air was not heated. A sausage was placed in a glass tube, hung from the end of the receiving aerial and in a few minutes the sausage started steaming, showing that it was being cooked. Yet no metal ever touched it. With a similar arrangement, cookies have been baked and water boiled, without any metal near them. An apple was baked from the inside out, without any perceptible heat to bake it. As a matter of fact, there was no heat around the wire of the aerial itself. An incandescent lamp pulled from its shipping carton the first time lighted to its full brilliancy without wires or a socket touching it.

Stranger yet, a copper bar lying on the floor heat-blistered the hand that picked it up, although the metal was—and remained—cold. In other words, *you actually do burn your fingers from a cold metal, which is at room temperature.*

A neon tube, suspended in the room, without anything touching it, lights up to its brilliant characteristic red glow merely when someone touches it with his hand. Electrical meters in adjoining rooms run wild and electrical instruments at a distance are twisted or broken, making all scientific measuring work in the vicinity of the operating tube impossible. Here, then, we have, in a small way, the beginning of a tremendously important art and even the scientists who performed the experiments are loath to predict to what actual use the new power tube may be put. Evidently, we have not as yet scratched the surface of this particular subject. There is no doubt in anyone's mind, who witnessed these important experiments, that power by radio is already here and while the beginnings are modest, no one dares to foretell its possibilities five or ten years hence, because the wildest expectations of today will no doubt be exceedingly tame a few years hence.

Only three short years ago, in the December, 1925, issue of RADIO NEWS, I wrote an editorial entitled "Power by Wireless" and I remember a number of letters from scientists and engineers who wrote me some rather uncomplimentary letters and pointed out to me, that the things which I had said were impossible and would never come about. Yet, they are here now and in a way have exceeded my predictions of that time. To be sure, what we do in the laboratory is not immediately done on a large and practical scale, but it is usually found that what can be accomplished in the laboratory sooner or later will be done on a large scale after more is known and more has been learned in the art. That was the case with radio itself, when Hertz made his original experiment; it was the case with the telephone; it was the case with the electric light and it was the case with the dynamo which furnishes the power and with many others.

Mr. Hugo Gernsback speaks every Tuesday at 9.30 P. M. from WRNY (326 meters) and 2XAL (30.90 meters) on various scientific subjects.

FOUR DIMENSIONAL ROBBERIES

by Bob Olsen

Author of "Four Dimensional Surgery," etc.

WHEN you are told that more than a billion dollars worth of bonds and other valuables were stolen within a few weeks from safe deposit boxes throughout the United States, you will realize how imperative it was that the criminal responsible for these stupendous robberies should be apprehended as quickly as possible.

The true state of affairs never became generally known, of course. Had even the slightest inkling of the tremendous and far-reaching effects of the thefts leaked out to the public, it would undoubtedly have caused the most disastrous panic in the history of the world.

You can easily imagine what would happen if it were suddenly discovered that a safe deposit vault—which has always been universally accepted as the one and only place where valuables may be stored with absolute safety—was no longer immune from theft. Though this fact was known only to a few persons, that was exactly the situation that obtained at the time I learned the truth about the great safe deposit robberies.

That I happened to be drawn into this extraordinary case was as fortuitous as some of the other preposterous things which had happened to me within the preceding few months.

Possibly you already know about the Hyper-Forceps, which I constructed under the direction of Professor Banning, the eminent authority on Four Dimensional Mathematics.* With this device it was possible to grasp an object and, by moving it through the fourth dimension, lift it from inside a closed receptacle without in any way disturbing the container. It was designed specifically for removing gallstones and foreign substances from within a person's body without cutting the patient's skin.

You will recall that it was during an attempt to perform an operation of this sort that the Hyper-Forceps was caught by some mysterious cosmic force and was snatched into four dimensional space, drawing with it the bodies of Doctor Paul Mayer and his patient, Professor Banning. Thanks to quick thinking on the part of Doctor Mayer, with a slight amount of assistance from me, a tragedy was averted and the two wanderers into hyper-space were brought safely back to our three-dimensional world.

One might reasonably suppose that a harrowing experience like this would suffice to deter Professor Banning from any further inclination to experiment with the mysteries of four-dimensional phenomena, but such was not the case. He insisted that he was pledged to devote his entire sabbatical year to the development of four-dimensional surgery and other practical applications of hyper-spacial theory, and nothing—not even the risk of annihilation—could induce him to deviate from his plans.

However, he did consent to take a protracted vacation—an indulgence which he had not enjoyed for over six years. It was characteristic of the man that he chose to visit England, France, Austria and Norway, chiefly for the reason that in each of these countries there was an eminent scholar who had done original work in developing four-dimensional mathematics.

This left me with little to do, although I was still under contract to assist Professor Banning and Doctor Mayer for the remainder of the year. I offered to cancel the agreement and even urged them to release me, but this they declined to do. Professor Banning insisted that as soon as he returned from abroad he intended to resume his experiments in the practical applications of four-dimensional mathematics and that he would need me to help him carry out the mechanical details of his work.

I was told to take two months' leave of absence on full pay. Professor Banning gave me permission to use his books, including one of the most complete libraries on hyper-space that has ever been assembled, and suggested a course of reading for me, but he did not insist on my doing this. In fact, it was left entirely up to me to decide how I should occupy myself during his absence.

Up to this time, my experiences with four-dimensional devices had in some respects been rather unfortunate. Yet I could give them credit for putting me in close touch with these internationally famous men, namely: William Sidelberg, Professor Banning and the two Mayer brothers.

It was about a month after Professor Banning's departure that Great Man Number Five appeared on the scene. He was none other than William Dern, head of the great detective agency that bears his name.

"Two gentlemen in the lobby to see you," was the phone message I received from the clerk in the Winchester Hotel.

Taking it for granted that they were reporters, I said, "Send them up."

Of course, you will remember the preceding story by Bob Olsen, in which acquaintance was made with the Four Dimensional Hyper-Forceps. In this story, we learn a lot more about the fourth dimension, a good deal of which is probably new to most of our readers. Our author has a knack for handling a subject that usually is only understood by mathematicians in such a way that it becomes plain and understandable on its face to all of us.

*"Four Dimensional Surgery," published in the February issue of AMAZING STORIES.

With both hands, the man manipulated the handles of the instrument until the jaws seemed to melt right into the thick steel walls of the vault. After a few seconds of probing, he withdrew the jaws of the Hyper-Forceps. Between them dangled a tin box which had been drawn right through the locked door of one of the safe deposit compartments.

After introducing himself, Dern presented his companion, who turned out to be Timothy Clancy, one of Dern's most experienced lieutenants.

Dern, a polished gentleman of forty-five, dressed in faultless taste, did not look at all like the conventional detective of fiction and the movies. Clancy came much closer to the commonly accepted idea of "Stealthy Steve, the Six-Eyed Sleuth." He wore a derby hat tilted over one eye, and was constantly chewing on a long, black cigar. During the subsequent weeks that I associated with Clancy, I rarely saw him without his hat on and a cigar in his mouth, yet never once did I catch him with his stogie lighted. He was one of those "dry smokers" who chew an unlighted cigar until it looks as if it had been laundered in the family washing machine and run through the wringer. When it became too macerated to hold comfortably in his mouth, he would throw it away and start mangling a fresh one.

I must confess that I got quite a turn when I learned the identity of my visitors. Not that I had anything on my conscience, but I have heard so much about innocent persons being "framed" or otherwise caught in a net of circumstantial evidence, that I couldn't help wondering just what crime I was suspected of having committed.

Instead of setting me at ease, the opening words of the great detective only served to accentuate my anxiety.

"I suppose you know all about the big safe deposit robberies?" Dern began.

In an attempt to cover my nervousness with badinage, I answered, "I'm like Will Rogers—all I know about crime is what I read in the papers. To tell you the truth, I haven't been interested enough in these robberies you speak of to read more than the headlines."

"In that case I'd better give you some of the details. You'll need to know them in order to get what we're driving at. For instance, it may interest you to learn that the total value of property which we know has been stolen from safe deposit vaults during the past three weeks—probably by one person—amounts to over a billion dollars."

"A billion dollars stolen by one individual in three weeks!" I exclaimed. "Why, that's inconceivable!"

"Sure sounds fishy, I have to admit. But nevertheless it's true. And for all we know the amounts we have been able to check up may be only a small fraction of the sums that have been taken without the owners knowing about it. As you probably know, a lot of people don't go near their safe deposit boxes except two or three times a year when interest coupons on their bonds fall due. And since the banks can't open the boxes until the customers call in person, there's no way of knowing how much more may have been taken from boxes, which have not been opened recently."

"But what have I to do with all this?" I interposed.

"I'm coming to that in a minute. First let me give you the high lights of the case. So far as we know, the first of the safe deposit robberies happened at the Utility National Bank of Milwaukee. Not so far from here, you'll notice."

I STARTED to ask him if he meant that for an insinuation, but he hurried on.

"Except for an accident, it might not have become known for some time after it happened. We have reason to believe, however, that one of the robberies at the Milwaukee bank was discovered the same day it happened.

"It started with the finding of a life insurance policy for ten thousand dollars in the waste-basket inside the vault. The man whose duty it was to unlock the boxes for patrons, discovered it just before closing time. He took it immediately to the clerk in charge of the safe deposit counter, who went through his records and found that the man whose name was on the policy had not opened his box for over a month. He got the customer on the phone and told him his policy had been found in the basket. The next morning, the owner opened his safe deposit box and found it absolutely empty. Approximately twenty thousand dollars worth of bonds had been removed from the box.

"Within the next few days several other renters reported thefts aggregating about half a million dollars.

"We were called into the case at the very outset, so we were able to get a complete record of everything that had happened to date.

"At first it looked like an inside job. Maybe you've heard of a similar series of robberies that happened in Los Angeles about three years ago. We hung that on the bank employee who had the job of opening the customers' boxes.

"Of course you know how a safe deposit vault is run?" he digressed.

"To tell you the truth, I do not. Since I never owned a bond or anything else worth safeguarding, I haven't had occasion to familiarize myself with the procedure employed in a safe deposit vault."

"Maybe I'd better explain it then. When you rent a box, you get two keys which are duplicates and are the only ones in existence that will open your box. Even the company that installed the vault is not able to make a third key that will fit your lock. If you lose one key, you can have a duplicate made from the other one, but if both keys become lost at the same time, the only way to open your box is to force the door, which is a long hard job. This destroys the old door and necessitates installing a new door with a new set of keys.

"Ordinarily, when you first rent a box, you would put one of the keys on your key-ring and, if you happened to be married, you would hand the duplicate key to your wife, so if you got drowned at sea or disappeared, she could open the box. The bank keeps on file a card with your signature and that of your wife or other person authorized to open the box.

"Before you are allowed to enter the vault, you have to sign a slip in the presence of the attendant and this slip is compared with the signature on file. If someone happened to find or steal your key, the only way he could use it would be by forging your signature while the bank employee is watching him—a thing which is extremely difficult, if not impossible.

"As an additional precaution, each box has two keyholes, one for your private key and the other for a master key kept by the bank. Neither key alone will unlock the box, but when both the bank's key and yours

are turned in the lock, the door of the compartment opens. The valuables are contained in a tin box which may be removed and taken to a table in the middle of the vault, or, in case a customer wishes privacy, he may go into a small room or closed booth adjoining the vault.

"When the attendant unlocks your box, he immediately removes the bank's master key, but leaves your key in the lock. On replacing your box, you close the door and turn the key, thus locking the compartment. So you see that, while the bank's key is needed to unlock the door, only your own key is needed to lock it. Is all that clear?"

I assured him that it was. He continued thus:

"The method used by the bank employee in Los Angeles was so simple that it's funny no one ever had thought of it before. He would notice the customers that were in the habit of taking their valuables into one of the private booths and staying there for some time. When, as it frequently happened, the vault was unoccupied while one of these customers was going through his papers, the bank attendant would remove the customer's key, make a wax impression of it, and quickly put it back in the lock again.

"From this wax impression he would file out a duplicate key, and the next time he was alone in the vault, he would open the patron's box and rifle it of its contents, after which he would lock it. In this way he lifted about a hundred thousand dollars worth of bonds, but we set a trap for him and finally landed him in jail.

"A confidential report of this case was sent to the president of every bank in the country and practically all of them adopted the rule of requiring all customers who left the vault to take their keys with them. That rule was being enforced in the Milwaukee bank at the time the big robbery took place there, so the wax impression scheme could hardly have been used. Another thing that made us give up the idea that this was an inside job was the fact that the only person who was in a position to pull anything of this sort was the man who had reported finding the insurance policy. Naturally, if he were a thief, he would have known better than to throw the policy in the waste-basket and even if he had been such a dumb-bell, he certainly would not have reported it to the bank officials.

"At that, we put the poor guy through the third degree and checked up on his private life and the amount of money he had been spending, but we couldn't get anything on him.

"Just about this time, five other banks—four in Chicago and one in Detroit—reported similar robberies and we knew at once that the jobs were being pulled from the outside and that we had to deal with one of the cleverest and most dangerous crooks that ever lived."

"But surely, you don't suspect me!" I blurted out.

Dern grinned and Clancy laughed out loud.

"Say, kid," the latter chuckled, "didn't you hear the chief say that this guy is one of the cleverest and most dangerous crooks that ever lived? You don't think that picture fits you, do you?"

"Oh, I see what you are driving at. You don't think I'm clever enough to be a crook," I said in rejoinder.

Clancy opened his mouth for a comeback, but Dern cut him short. "Shut up, Clancy, and let me do the talking."

To me he said, "Don't mind him. I'm sure he didn't mean anything by that crack." Then, with a twinkle in his eye, he again addressed his assistant. "You know, Clancy, sometimes these college guys are smarter than they look. Remember the D'Autremont case? If it hadn't been for the accurate description of the crooks which a California professor doped out of an old pair of overalls, we'd never have caught those birds.

"But to answer your question," he resumed. "Of course we don't suspect you. I don't mind telling you though that we did check up on you—just as a measure of precaution. But, since you have not been outside of Winchester for over three months, you have an iron-clad alibi and a clean bill of health. The reason we came to you is that you are an expert on the fourth dimension."

I protested: "I'm afraid you have been misinformed. I know a little bit about hyper-space, but hardly enough to be called an expert."

"But didn't you invent some kind of jigger for taking out a man's gizzard without opening him up?"

"You mean the Hyper-Forceps. But it wasn't my invention. I merely helped Professor Banning work out the mechanical details of his idea. Furthermore, since it was just a forceps or device for picking up articles and had no cutting edges, it could be used only for removing unattached articles like foreign substances and gall-stones."

"Nevertheless, you may be able to help us. Perhaps we are on a wild goose chase, but we have learned that in tracking criminals, we can't overlook even the most insignificant clew or the most improbable possibility, if you know what I mean.

"Our coming to you was suggested by a newspaper story. In referring to the lack of any satisfactory explanation of the series of robberies, the reporter said, 'the robber must have worked through the fourth dimension.'

"All I want to find out from you is whether it would actually be possible for anyone to remove the contents from a safe deposit box without opening the door."

"As easy as shooting fish," I assured him. "I could do it myself with the Hyper-Forceps."

"The hell you could!"

This was from Clancy.

"Excuse me, Mister Clancy," said Dern in a sweet tone of voice, "but suppose you try keeping your ears open and your mouth shut." Then, turning to me. "Please pardon the interruption. You were just saying that with the Hyper-Forceps you could remove the contents of a safe deposit box without opening the door. Would you mind explaining just how this astonishing thing could be done?"

"Not at all. Simply by moving it through the fourth dimension. Are you familiar with the fundamental principles of hyper-space?"

"I'm afraid not, although I have read the two magazine stories which you wrote on the subject."

"So did I," the unsuppressible Clancy butted in.

"And when I got through reading them, I knew a darn sight less than when I started."

Both Dern and I got a huge kick out of that.

"I'm sorry my stories didn't get over, but perhaps I can explain the fourth dimension in simple, every-day language—so even Mister Clancy can understand it."

THIS brought a chuckle from Dern and a grunt from Clancy.

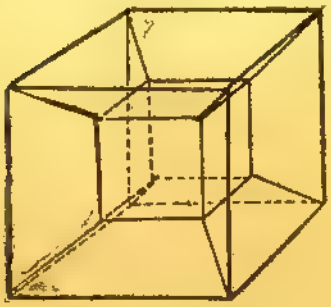
"Every object we know of has three dimensions," I went on. "We call these dimensions length, width and thickness. For purposes of measurement, we always consider these dimensions to be at right angles to each other, thus": I picked up my fountain pen and two pencils and held them in my hand in such a position that they intersected each other at right angles. "Now, if Mister Clancy will loan me one of those long cigars which he has in his pocket, I'll attempt to show you what is meant by the fourth dimension."

Clancy gave me a stogie and I placed the end of it at the intersection of the three other objects.

"All I have to do is place this cigar so it is at right angles to the pen and the two pencils, but is not in the same straight line with either of them, and the stogie will represent the fourth dimension."

"Let's see you do it!" challenged Clancy.

"I don't claim that I can do it. One reason why I can't is that neither of these objects comes anywhere near being like a line, which would have neither width nor thickness, but only length. However, I can draw a picture showing what a cube would look like if it were extended into four dimensions. Mathematicians call such an object a tesseract or hyper-cube. It is what you'd get if you moved a cube having a volume of one cubic inch for a distance of one inch in the direction of the fourth dimension. And while I'm about it, I'll illustrate my point still further by drawing a picture of a three-dimensional transparent glass cube, as it looks from a point directly above it." I picked up a piece of paper and drew these two sketches:



Four Dimensional Cube or Tesseract.

Three Dimensional Glass Cube as seen from directly overhead.

"Of course you understand that this is drawn in perspective and for that reason it looks somewhat distorted to anyone who is not accustomed to looking at four-dimensional objects. To get the idea, you'll have to use your imagination. The small cube in the center is really exactly the same size as the outer cube. It's somewhat similar to the effect you get when you look straight down on a three-dimensional cube made out of transparent glass. What you seem to see is a square with a smaller square inside it, and with the corners of the two squares connected with diagonal lines. Yet you know perfectly well that in reality both of the square faces are equal in size and the four lines which look diagonal are really perpendicular.

You also know that the four figures grouped around the center square, which look like trapezoids, are in actuality squares.

"It's exactly the same sort of effect you get from my picture of a tesseract. You'll have to imagine that the lines connecting the corners of the inner cube with the corners of the outer cube are perpendicular to all three edges of each of the cubes which they intersect. These lines form the edges of four more cubes, exactly equal in size to each of the other two cubes and grouped around or *through* them.

"If you'll count the various parts of the tesseract, you'll see that it is bounded by six cubes, twenty-four square faces, thirty-two edges and sixteen corners. Simple enough, isn't it?"

"Simple as mud," grunted Clancy.

"You follow me, don't you, Mr. Dern?" I asked the great detective.

"Well, I may be a few jumps behind you, but if you'll travel a little more slowly and give me time, maybe I'll catch up with you."

"Let me try another line of attack," I suggested. "One of the best ways to grasp the possibilities of four-dimensional space is to make comparisons between three-dimensional objects and those having only two dimensions.

"For instance, suppose I make a two-dimensional glove out of paper. Of course, paper has three dimensions, but the thickness is so small compared to the other two dimensions that we may consider the paper to be two-dimensional in character."

I picked up a pair of scissors and quickly clipped out a bit of paper shaped like a glove. Then I drew on another sheet, a crude figure of a paper doll with the palm of both hands showing.

"You'll notice that this paper glove fits only the right hand of the doll, and no matter how I slide it around on the paper, I can't make it fit the left hand. But if I pick it up and turn it over through the third dimension, it becomes a left glove and no longer fits the right hand. In the same manner, if your right-hand glove were turned over through the fourth dimension, it would fit your left hand. You mustn't confuse this with turning the glove inside out, which would expose the rough, unfinished inside part. When inverted through the fourth dimension, your glove would look just the same, with the smooth finished surface outside, but would have the thumb and fingers in such positions that they would fit the other hand.

"Here's another comparison. See this rubber band? It was cut from an old inner tube. Notice that it is rough on the inside and smooth on the outside. Without breaking or injuring it in any way, I can twist this circular band through the third dimension so that now the rough surface is outside and the smooth one is inside.

"The same thing can be done with a tennis ball,

by twisting it through the fourth dimension. Without breaking the ball in any way, it could be turned inside out, so that the outside surface would become the inside and vice versa. Do you comprehend what I mean?"

"I guess so," Dern hesitated.

"Sounds goofey to me," growled Clancy.

"As I understand it," I continued, "you are interested principally in knowing how the contents of a safe deposit box can be removed without opening the door."

"That's exactly what I would like to know."

"I can illustrate that with this plain rubber band or ring. To a two-dimensional being or Flatlander, this would be an impregnable safe deposit vault. In order to obtain access to it, he'd need a door in the side, since it would be impossible for him to climb over the edge of the ring. However, if he happened to get hold of a specially constructed pair of pliers he could, without leaving his two dimensional world, reach over the top of the ring, through the third dimension and remove all the contents.

"The Hyper-Forceps which Professor Banning and I made is nothing more nor less than a pair of pliers or tongs, that will operate through a fourth dimension. With it I could easily remove the contents of a safe or closed box without opening the door."

"And where is the Hyper-Forceps now?" Dern demanded.

"Locked in a drawer at our workshop on the hospital grounds."

"Would you mind letting me see it?"

"I'd be glad to."

The hospital was but a short distance from my hotel, so the three of us walked over to the workshop in which Doctor Banning and I had constructed the Hyper-Forceps.

We had always kept the instrument in a locked drawer of a cabinet where our delicate tools were stored. There were only two keys to this drawer. I had one and Professor Banning had the other.

When I placed my key in the lock I was surprised to find that the drawer was already unlocked. Knowing the extreme care which both Professor Banning and I exercised whenever we handled the Hyper-Forceps, I could not believe that either of us had neglected to lock the drawer. With a feeling of dreadful premonition, I opened the drawer.

It was empty!

Dern examined the lock. "H-m-m-m! Just what I thought! The lock has been sprung with a screwdriver and the bolt pushed back in place. As crazy as this four-dimensional applesauce sounds, it looks as if we are on the right track after all."

IF anyone had suggested that I was to become an operative for the William Dern Detective Agency, I should have told him he was either drunk or out of his mind—but that's exactly what happened.

Dern talked me into it.

He pointed out to me that, since it was now quite apparent that the crook, who was perpetrating these stupendous robberies, was using the Hyper-Forceps, and since I was the only available person who knew how the instrument looked and was operated, my assistance was indispensable. The tremendous seriousness of the crimes and the dangerous and far-reaching effects they were having were also imparted to me in terms that left me almost gasping for breath.

"The stuff that's been printed in the papers—bad as it sounds—doesn't come within a thousand miles of describing the real state of affairs," Dern told me. "They wouldn't dare to publish a tenth of the actual facts.

"Just think what it means to have the security of all the world's safe deposit vaults suddenly destroyed. A man might as well put his valuables in an open soap box and leave it on the street, with a 'Help Yourself' sign on it, as to put them into a safe deposit box these days.

"Did you know that all the insurance companies have already announced that they will no longer insure the contents of safe deposit vaults without charging rates that are far in excess of the income which a bond owner can get from his securities?

"I tell you, the bankers and other financiers are desperate. They have their backs against a wall. It wouldn't take much to throw every bank and business house in the country into bankruptcy. That's how important it is, that we catch this crook before he does damage that can never be repaired."

The upshot of it all was that I agreed to coöperate with Dern in every possible way, with the understanding, however, that as soon as Professor Banning returned, I was to be released from duty.

In order that I might work in harmony with the rest of the organization, I was delegated to team with Clancy, who was in active charge of the case.

After we had become better acquainted, Clancy and I got along famously. He grudgingly admitted that in matters pertaining to science and mechanics, I had just a shade the better of him, but when it came to skill in tracking the elusive criminal to his lair, I couldn't help handing the solid gold handcuffs to Clancy.

His method was simple enough. As soon as it was established with reasonable likelihood, that the criminal was rifling the safe deposit boxes by means of the Hyper-Forceps, it was easy to figure out just how he would operate. His first move would be to rent a box for himself, since that would be the only way he could get inside the vault. He would make frequent visits to the vault until he happened to strike a time when he was all alone. Then, with the aid of the Hyper-Forceps, he would remove the contents of three or four boxes, putting the bonds and other valuables which could easily be converted into cash, into his own box, and carrying the worthless papers away in his pocket. On his first robbery he had made the mistake of throwing an insurance policy into the waste basket. This error was never repeated.

Since we knew that our quarry was numbered among the renters of safe deposit boxes in the various banks which had been robbed, the next logical step was to obtain from these banks copies of all new signature cards which had been made out between the last time I had seen the Hyper-Forceps and the date the robbery was discovered in each bank.

From this assortment of signatures, it didn't take a handwriting expert long to pick out the cards which had been signed by the same person. Naturally the crook had used different names in each of the places he had visited, but the tell-tale slant and shape of certain typical letters gave him away.

Facsimile copies of all these signatures were reproduced in large quantities and were sent to the safe deposit departments of every bank in the United States and Canada, with instructions to watch for signatures similar in character. One thing that helped us most was that the robber, for obvious reasons, had always rented one of the largest boxes available, which was sufficiently unusual to attract attention.

It wasn't long before we picked up a hot scent. We received a wire from one of the largest banks in Salt Lake City, stating that a box had just been rented to a man whose signature was identical with one of those on the warning sheet. Evidently he had become so careless and cocksure that he would never be discovered, that he had even used the same alias as on one of the previous robberies.

Without waiting even to pack a grip, Clancy and I boarded an airplane which had been kept in readiness for just such a call, and hopped off to the land of the Latter Day Saints.

We landed at Woodward Field at about two o'clock in the afternoon and immediately went to the bank. Upon presenting our credentials, we secured permission to keep the vault open after the regular business hours. Under Clancy's direction, two workmen made a few changes in the scenery.

He selected one of the small private booths, located almost directly opposite the entrance of the vault, and had two concealed peep holes put in the door. At the further end of the vault there were already two large mirrors. Clancy instructed the workmen to install four more mirrors on the portions of the walls not occupied by the doors of safe deposit compartments.

When this was done he went into the "doctored" booth and looked through each of the peep holes, while I moved from one part of the vault to another.

"O. K.," he finally said. "I can see you now, no matter where you stand, as long as you're inside the vault."

He also had wires run from the booth to the clerk's counter with a small signal light arranged in such a way that when the clerk pressed a button with his foot, the light would flash on inside the booth. This was to be our signal that the suspected person was about to enter the vault.

As soon as the bank opened on the following morning, Clancy and I took our positions inside the booth, but it was not until about fifteen minutes before closing time that the little light flashed on. Clancy and I immediately put our eyes to the peep holes and waited.

The man who accompanied the bank attendant into the vault was a tall, well-built, prosperous-looking man of about thirty-five. After going through the customary routine of inserting each of the two keys, opening the door and drawing the tin box part way out of the compartment, the bank attendant withdrew and left Mr. Suspect alone in the vault.

He took his box to the table in the center of the vault and pretended to examine a few papers. In reality he was stealthily looking around to see if anyone else was at the counter preparing to enter the vault. Apparently satisfied that he would not be interrupted, he picked up his box and carried it to his compartment.

It happened to be in a front corner, out of sight of anyone standing in front of the vault's entrance, but we could easily see his reflection in one of the mirrors.

Placing his box on the floor, he reached in his breast pocket and drew forth a peculiar-looking article resembling a physician's forceps with two sets of handles.

"The Hyper-Forceps!" I whispered to Clancy.

He nodded to indicate that he had understood me.

WITH both hands, the man manipulated the handles of the instrument until the jaws seemed to melt right into the thick steel walls of the vault. After a few seconds of probing, he withdrew the jaws of the Hyper-Forceps. Between them dangled a tin box which had been drawn right through the locked door of one of the safe deposit compartments.

Working with nervous haste, he removed the papers from the pilfered box and stuffed them into his own box. Then, by using the Hyper-Forceps again, he forced the empty box right through the closed door of the compartment into its place.

Once again he returned to the table in the center and, finding the space in front of the counter still unoccupied, he returned to the corner and started to perform the same operation on another box.

It was then that Clancy rose and signaled for me to follow him.

"Have you got your gun?" I whispered.

"Sure, but I won't need it with this bird." It turned out that his boast was a bit premature.

Without making a sound, we opened the door and tiptoed into the vault, just as the thief was removing the second box from its compartment.

Clancy laid his hand on the crook's shoulder and pronounced the conventional formula: "You're under arrest."

The Hyper-Forceps, together with the safe deposit box, clattered to the floor.

With the quickness of a rattlesnake, the criminal reached back and grasped Clancy's neck between his clasped hands, at the same time bending forward in such a way that he heaved the detective's body over his shoulder and threw him to the floor of the vault. Clancy passed out.

Then the thug turned to me.

Before I could make a move to defend myself, he dealt me a terrific blow in the pit of my stomach. I crumpled like a deflated balloon and sunk down on top of the stolen safe deposit box.

Though the pain was frightful, I still retained consciousness. I was horrified to see the thief take from his pocket a wicked-looking clasp knife, which snapped open with an ominous click.

He was quite close to me, and he must have thought that I was out of the picture completely, for he was

directing all his attention to Clancy, who was just coming to. As I tried to brace myself so I could sit up, my hand touched the Hyper-Forceps.

Singular, isn't it, how rapidly one's mind sometimes works in times of dire emergency? Almost instinctively, I grasped the handles and an instant later I had caught the robber's hand in its jaws. With equal rapidity, I manipulated the device for moving the jaws into the fourth dimension.

Though I had fully anticipated what would happen, the result was none the less astounding. The knife and the hand holding it instantly faded from sight, together with the upper portion of the man's body. From the waist down, however, he was still in plain sight.

Clancy was just struggling to his knees. His eyes opened so wide that I could see fully half an inch of white eyeball on all sides of the pupils. With a limp and bedraggled cigar still hanging from his blue lips and his mashed derby cocked over one eye, he certainly was a remarkable sight.

"My Gawd!" he gasped. "There's nothing left of him but a pair of pants!"

"Don't worry," I assured him. "His legs are inside the pants and I've got the rest of him on the end of the Hyper-Forceps. He sure is a tough egg. Maybe you'd better tie his legs together, before I pull the top part of him back again."

Clancy got up and approached the weird-looking half-body. He had no sooner come within range, than one of the legs shot out and dealt him a resounding kick on his shin.

"You blankety-blank son of a blank!" Clancy swore. "No pair of pants can kick me in the shin and get away with it." Whereupon he brought one of his square-toed shoes in vigorous contact with the seat of the aforementioned pair of pants.

I felt a tug on the Hyper-Forceps which almost pulled me off my feet.

"Go easy, Clancy," I yelled. "If you don't want me to get jerked into the fourth dimension, you'd better lay off those trousers. And as for you, you dirty crook, I don't know whether you can hear me or not, but unless you want to commit suicide, you'd better quit struggling and give up. If you once get loose from the grip of this instrument you'll never be able to get back to earth again."

He must have heard and understood, because he immediately quieted down and submitted to having his feet tied together with Clancy's suspenders. As soon as this was accomplished, I pulled steadily on the hyper-forceps and when the right hand came into view, Clancy slipped his handcuffs over the wrist and wrenched the knife from its grasp. A moment later, we had drawn the rest of the thief's body back into three-dimensional space.

He turned out to be a former assistant in the X-Ray Laboratory at the Mayer Brothers' Hospital. Evidently he had learned about the Hyper-Forceps from snatches of conversation he had overheard at Winchester, and had conceived the idea of stealing it and using it for criminal purposes.

In his pockets and his luggage we found over a hundred safe deposit keys, all conveniently labeled with the names and locations of the banks to which they belonged. With the aid of these keys, we recovered all the stolen property except for a few thousand dollars in cash, which he had spent for expenses.

The four-dimensional thief is now in the penitentiary. He has been found guilty on enough counts to keep him in jail for the next thousand years.

As for the Hyper-Forceps, we decided it was too dangerous an instrument to leave in a flimsily locked drawer. It now reposes in one of the most modern, theft-proof, non-pickable safe deposit boxes in a bank known only to three persons. Doctor Paul Mayer has one of the keys and I am holding the other to give to Professor Banning as soon as he returns from abroad.

THE END.

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a textbook. Moreover, most of the stories are written in a popular vein, making it possible for any one to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge.

1. What is the scientific treatment of the private box system in safe deposit vaults for securing the contents? (See pages 104 and 105.)
2. Can you give an illustration of the fourth dimension with four straight strips of wood? (See page 106.)
3. What is the name of the solid with four equal axes symmetrically placed? (See page 106.)
4. What is a tessaract? (See page 106.)
5. What hypothetical process would produce a tessaract? (See page 106.)
6. What would the drawing of a four dimensional cube look like? (See page 107.)
7. Give some examples of "life in a two dimensional world and of its limitations. (See pages 106 and 107.)
8. What is a Flatlander? Describe his limitations. (See page 107.)
9. Name two characteristic and widely differing members of the Mollusk family. (See page 115.)
10. How many tentacles has the octopus? (See page 115.)
11. How are the tentacles of the octopus armed? (See page 115.)
12. What do the syllables *octo* and *pus* in octopus tell us? (See page 117.)
13. What is a chromatophore? (See page 142.)
14. What are the distances of Mars and of the Moon from the earth? (See page 148.)
15. How would these distances affect the time required for transmission of radio messages? (See page 148.)
16. How can you hear without using the auditory system of the ears? (See pages 154 and 155.)
17. What is the general direction followed by the majority of the Martian Canals? (See page 155.)

The OCTOPUS CYCLE
by Irvin Lester and Fletcher Pratt

THERE was a long, uneasy swell on the surface of the Indian Ocean as though someone were gently rocking the floor beneath it, and a hot, moist wind blew against the face of Walter Weyl, A.B., A.M., B.Sc., as he stood against the rail of the pudgy little Messagéres Maritimes steamer, wondering whether he would dare to chance a spell of seasickness by lighting a well-cured pipe for the fourth time that afternoon.

It was hot—and off to the west, Tamatave's houses gleamed white and blistering against the green background of the Madagascar jungle, blued by the distance. Away to the north the coastline stretched illimitable. It would be another day at least before the steamer arrived at Andovorata, and Walter Weyl, A.B., A.M., B.Sc., would be able to get at the heart of the mysterious occurrences that had brought him there.

His mind traveled back to the letter from his friend of college days, Raoul Duperret, now on French government service in that mysterious land—Madagascar. He saw it again before him, the characteristic French handwriting, the precise French phrasing:

"...alas, we cannot pursue these investigations, through lack of money. To you, then, my friend, I appeal. To you belongs, permit me to say, that combination so rare of the talent for scientific investigation and the means to pursue it. To you also will appertain the credit for any discovery.

"Let me, in detail, tell you of what we know. Diouma-Mbobo is a chieftain of the blacks in the southern part of the island, who have never been rescued from cannibal practices. He is, as far as we know, a man who rules by law and is of a truthfulness. Thus, when he accused the Tanôsy, who are the next tribe to him, of stealing people and eating them, we took measures and did not too much believe the denials of the Tanôsy. But Diouma-Mbobo's people continue to disappear, and when the commandant sent a whole company of Senegalese to preserve order, they still disappeared. What is still more distressing, is that some of the Senegalese also disappeared, and save but a solitary rifle or two found in the jungle, no trace of them remains.

"There is some fear in the island and we are in danger of losing our grip on the natives, for we cannot at all explain these disappearances nor prevent them. The commandant says, 'Send a battalion of chasseurs,' but it is my belief that a battalion of chausseurs would likewise fail, and I send for you, for I believe the agency that destroys men thus is not human. No human would neglect the rifles.

"As you know, Madagascar is a country apart. We have here the giant spiders, large as bats; the lizards, large as sheep, and no, not a single snake. All our animals are *outré*, impossible even, and what if one more impossible than all . . .? And thus it is to you, my rich American friend, I appeal for myself and my country."

It had offered precious little real information, that letter, but enough to have caused Walter Weyl to drop a learned monograph on the ammonites of the Upper Cretaceous and hurry across ten thousand miles of ocean with microscopes, rifles and all the equipment of the modern scientist, to the aid of his friend.

The sun went down suddenly, as it does in the tropics, and the sea was purple darkness all at once. The lights of Tamatave twinkled away behind and were blotted out; off to the west was only the menacing blot of the huge island, forbidding and dangerous in the gloom. Weyl sat musing by the rail, listening to the hushed voices of a couple of men in the bows.

Forgetting his dinner below, he fell into a half-doze, from which he was suddenly awakened by a sense of approaching evil, definite, yet which could not be located. He looked about lazily. The Southern Cross hung brilliant in the sky; there was no other light but the flare of portholes on the water, and no sound but the slap of waves against the bows. Yet the night had suddenly become dreadful. He struggled lazily to put a name to the sense of impending doom, and as he struggled there was a sudden and terrible scream from the bow—the cry of a man in mortal anguish and fear.

"Oh—o—o—u—" it went, running off into a strangled sob, and through it cut the shout of the other sailor, "Secours! Secours! Ferent . . ." and the sound of a blow on soft flesh.

Weyl leaped to his feet and ran forward; there was the sound of a slamming door, and a quick patter of

HERE, again, is a different story, a thriller that you will remember for many years to come. And that you may not shout at once "impossible," we are printing in this issue an actual photograph of one of these sea creatures, which comes pretty close to what our authors have in mind, except that they do not roam on land, but keep strictly to the sea. As Curator Dr. Ditmars, of the Bronx Zoological Gardens, pointed out recently, nature is always far more surprising than fiction. For instance, there are really fish that climb trees, impossible as this sounds, and they do exist now in India; also there are snakes that can fly from one tree to another. These things may sound impossible and fictional, but they are facts.

ing forward as swiftly and imperturbably as before. Had all shots missed?

feet behind him. In front was the blackness of the bows, out of which emerged a panic-stricken man who charged against him, babbling incoherent French, and bore him to the deck. As he went down he caught a glimpse of two waving prehensile arms, like lengths of fire-hose, silhouetted against the sky.

Somebody ran past him, the deck leaped into illumination as lights were switched on, and he picked himself up to see—nothing. The bows were empty. There was a babble of conversation:

"Where is Ferentini?"

"What is the trouble?"

"Who is there?"

There was confusion, stifled by the appearance of the captain, a eupeptic little man in a blue coat and a tremendous moustache which swept his shoulders. "This uproar—what does it mean?" he said. "Let the sailor Dugasse come forward."

A big Basque, obviously panic-stricken and with rolling eyes, was shoved into the light. "Tell us the reason for this," demanded the captain.

"Ferentini and I," he gasped, "we were talking, so, in the bow. One, two big arms, like a gorilla, seize him by the neck, the chest, and zut! he is gone. I strike at them, but he is gone."

"Assassin!" said the captain briefly, "Confess that you quarreled and you threw him over."

"No, no. He was taken. I swear it. By the Holy Virgin, I swear it."

"Put this man in the lazarette, you Marulaz, and you Noyon. There will be an investigation. Take his knife away from him."

"His knife is gone, monsieur," said one of the seamen who had stepped forward to take charge of the sailor Dugasse.

"Without doubt, he stabbed the other. Put him in irons," was the captain's succinct reply, as he turned toward the cabin and his interrupted dinner.

Walter Weyl stepped forward. "I think the man's story is true," he offered. "I think I saw something myself."

"Permit me to inform you, monsieur, that I am the commandant of the vessel," remarked the eupeptic captain, with the utmost courtesy. "There will be an investigation. If the man is innocent it will do him no harm to spend a night in the lazarette." And again he turned away.

Dissatisfied, but realizing that he could do nothing, Weyl walked toward the bows, to see if he could find any trace of the strange encounter. There was nothing, but as he was about to return and go below, his foot struck something, which on investigation with a flashlight, proved to be the knife of the sailor Dugasse.

The blade was wet, and as he picked the weapon up there dripped slowly from it a pale, greenish oleaginous liquid, totally unlike human blood. With this bit of evidence in his hand, he started thoughtfully for his cabin.

CHAPTER II

TWO days later the friends sat under the giant mimosa, in whose shade Raoul Duperret had built a little cottage on the height overlooking Andananarivo. A table had been dragged outdoors and was now piled with a miscellaneous collection of instruments, papers and microscope slides.

Weyl leaned back in his chair with a sigh and lit his pipe.

"Let us see what we have, after all this study," he said. "Check me if I go wrong. Diouma-Mbobo's people and about a dozen of the Senegalese have disappeared mysteriously. So did the sailor Ferentini on the boat that brought me here. In no case was any trace found of the man after he disappeared, and in the cases on the island when anything was found it was always a knife or a rifle

"This report," he ruffled the papers, "from one of the Senegalese, says that he saw his companion jerked up into a tree by a huge black rope, but when he rushed to the tree he could see nothing. It was late in the evening. Now this account agrees singularly with that of the sailor Dugasse—and moreover, if natives were responsible for the disappearances, they would at least have taken the knives, if not the guns.

"Therefore, I consider that the disappearance of Ferentini, the Senegalese and the natives was due to the same agency, and that the agency was not human; and, therefore, I think the Tanôsy and the sailor Dugasse, although he is still in jail, should be acquitted."

Duperret nodded a grave assent.

"But I am sure it was nothing supernatural. I saw something on that boat, Duperret, and the Senegalese saw something. Moreover, there is Dugasse's knife. I have analyzed that liquid which dripped from it; it is blood, indubitably, but blood different from any I have ever seen. It contains a tremendous number of corpuscles of a new character, not red, but greenish yellow, and the liquid in which they float is similar to that of all other bloods. More than anything, it resembles the blood of an oyster, which is impossible, as oysters do not lift men into trees. Therefore, I accuse some hitherto unknown animal of these deaths.

"But what kind of an animal are we dealing with?" Weyl went on without paying any attention to an interruption from Duperret. "Evidently a very swift and formidable one. It killed Ferentini in a few seconds. It dragged a powerful Senegalese, who was provided with a rifle, off with equal swiftness, and the stabs of Dugasse were as futile against it as the rifle of the other black boy.

"In both cases, the attack came from above, and I am inclined to think, since we were attacked some distance off the coast and the natives some distance inland, that the animal possesses extraordinary mobility—probably wings. This would make a bird of it; which is impossible because of the blood; therefore, making the whole thing absurd . . . But in any case, the hunt for this animal, or animals, for there may be more than one, will be a dangerous business."

"All is decided then?" asked Duperret. "Very well, let us depart. I am eager for action, my friend." And he stood up, stretching his muscular frame toward the towering tree.

"Done," said Weyl.

He rose. "You have some influence with the military authorities, you of the civil arm? If the matter were put to the commandant in the proper way, do you sup-

pose we could get an escort? I need not conceal from you that this big-game hunt is likely to be a serious business. Any animal that devours live men . . ."

"The commandant and I were at St. Cyr together," replied Duperret. "He will doubtless appoint a lieutenant and a demi-company of African chasseurs to assist us."

CHAPTER III

A WEEK later found them with a dapper French lieutenant, Dubosc by name, making the best of insufficient pup tents and canned French sausage by a dank, slow stream a few miles out of Fort Dauphin. Around them lay or squatted a perspiring group of black soldiers in the uniform of the Chasseurs d'Afrique, while round them again, further from the sun of the white men's presence, were as many natives, equally sable of hue, and with no uniforms at all. These were the guides lent by Diouma-Mbobo, silent and somewhat scared men, for that portion of the jungle had earned a bad reputation from the repeated disappearances.

Weyl was annoyed. "If we only knew what we were looking for and where to find it," he said to Duperret that evening, "but here we are three days out, with our labor for our pains. Hunting for one animal in this jungle is like the old needle and haystack saying."

"Yes, and I'm afraid for the guides," the Frenchman had answered. "They'll desert unless they are given something to do."

Night found them as restless as the guides. Weyl woke to a sense of something impending, looked out and saw only the calm sentries speaking in low tones as they encountered each other at the end of their rounds. He felt reassured, and dropped off into another hour or two of slumber punctuated by fierce dreams, woke again and saw a moonlit shadow on the flap of his tent. "Raoul!" he called softly.

The Frenchman bent and entered.

He was fully dressed.

"Nerves keep you awake, too?" said Weyl. "I've been awake before, but everything's quiet. But why are you dressed?"

"I have a premonition. Also, I hear something unusual. You hear that strange whistling? No, you would not. You are not used to jungle noises. To me it is very much to notice. Something . . ." and he looked at his friend, who, though in a strictly unofficial manner, was recognized as commander of the expedition. "Shall we rouse the soldiers?" he questioned.

"They'll need sleep if we're to march all day," Weyl answered.

"But I am thinking we will not need to march. However—" Raoul was about to dismiss his feeling as a fancy and threw another glance over his shoulder through the open tent flap.

In an instant he was on his feet, almost tearing the tent from its pegs, a half cry escaping his lips that caused Weyl to leap up beside him, seizing the revolver that lay by his hand.

Three, four, half a dozen snakelike arms, mysterious in the moonlight, hovered for an instant over the heads of two sentries who had met at the edge of the trees, and before they had comprehended their danger, before they could be warned, they were gripped, lifted from their feet and their cries stifled before they reached the gloom of the branches fully ten feet above.

Weyl, with a horror such as he had never felt before, seemed to clutch at his throat, fired rapidly into the tree. Something dropped with a crash of leaves; a veritable chorus of whistlings and swishings rose around the camp, and in the tents and along the sentry line there were sudden lights and activity, shouts of *"Qui vive?" "Aux armes!"* and the thick note of a hastily blown bugle as its owner was roused from sleep.

Men ran from their tents to stand gazing. "Raoul!" shouted the American. "It's here! The machine gun!" and, pistol in hand, in his sleeping garments, he dashed for the tree.

He glanced up. A subdued rustling gave no clue to its source, nothing to shoot at, but out of the tail of his eye he caught a glimpse of motion among the giant ferns, and the peculiar whistling again became audible.

He turned, and was suddenly conscious of an insane disbelief in his senses. What he saw resembled nothing so much as an enormous umbrella, standing ten feet high on stiltlike, but prehensile arms, while at the point where they gathered, a huge, bulbous head rose and fell rhythmically as the thing emitted that singular, high-pitched whistle. There was something unspeakably loathsome, some touch reminiscent of putrefaction and decay about it.

An arm, like a huge snake, lifted from the ground and swung aimlessly about under the leaves. Abruptly, another animal, the duplicate of the first in all respects, came from behind a tree to join it, and the two, despite their clumsy form and lurching uneven movement, began to advance toward him with a rapidity that was astonishing.

Weyl awoke to the necessity of flight. He raced back toward the camp, where Lieutenant Dubosc, aroused by the shots and cries, and aware that something was impending, had formed the Senegalese in a rough, slanting angle of a line, the men facing the jungle, while behind them Diouma-Mbobo's natives crouched in frightened curiosity.

The American turned as he reached the line. Behind him, into the clearing, with an odd semblance of order, came a half-dozen, a dozen, twenty of those terrible umbrella-like shapes, moving deliberately, but covering the ground as fast as a man runs.

A shot was followed by an order, a bugle note, and the irritating crash of the volley, which shaded into the rattling drum of the machine guns. When his eyes again became used to the dark after the flame of the rifles, Weyl saw that the giant, shapeless beasts were moving forward as swiftly and imperturbably as before. Had all the shots missed?

Another volley collapsed into a frantic and spasmodic burst of firing, as no effect was visible on the hideous shapes that came on swiftly.

Weyl aimed his revolver carefully at one bobbing head, and the shot was drowned in a crashing chorus of fire; the beast came right on. He was dimly conscious of shooting again and again in a kind of frenzy at those

horrible bulby umbrellas that kept coming closer, dim figures of horror in the green moonlight, huge and impregnable, towering over the little group of humans who shouted and cursed and fired impotently.

One man, half maddened, even ran forward, waving his bayonet, and was gathered gently up by two of those big arms as a child might be picked up by its parent.

A thrill of wavering ran down the line; one or two men threw away their rifles, when suddenly, right at their feet, one of the monsters collapsed. There was a chorus of whistling and they moved backward, apparently without turning, as rapidly and silently as they had come . . .

A feeble cheer rose from the Senegalese, a cheer that was silenced instantly, for a glance revealed that half the hastily formed line was missing, the men gone as completely as though they had never been.

Weyl was aware that he had been clicking an empty pistol, that his throat was dry, that Duperret sat at his feet, his face in his hands, seemingly without power of motion. Senegalese and natives, frightened to the verge of madness, babbled like children all around him. The iron voice of Dubosc rose:

"Silence, my children!"

Out in the clearing before them was no sign that men had battled for their lives, save one ugly, loathsome shape, that sprawled on the ground and twitched feebly in the gloom.

CHAPTER IV

THE survivors of that unbelievable, one-sided battle dragged themselves back into Fort Dauphin five days later. One man was violently insane, tightly bound, and as for the rest, it seemed that only remnants of sanity remained. The emotional blacks had almost collapsed under the strain, and nothing but incoherent gibberings could be extracted from them by the soldiers who cared for the exhausted, weaponless, starving and almost naked remainder of the trim company of Chasseurs who marched out with drum and bugle only a fortnight before.

Weyl begged off from an immediate report to the commandant, and went to bed, where he slept the sleep of exhaustion for twenty hours on end, and Duperret did likewise.

Weyl woke vastly refreshed, and with the horror that had been dragging at his mind relieved, though with such a feeling of weariness as he had not known since college football days. The black boy at the door obligingly brought him the latest newspapers, now not quite a month old, and he re-established his touch with the world of men by reading them over the tiny breakfast of coffee and rolls which was all the fort physician would allow him.

An item in one of them caught his eye, and caused him to sit up in his chair with a whoop of joy, that brought a scandalized glance from Major Larivet, the white-moustached old Alsatian who was in command of the fort, and a grin from Duperret, the first since that dreadful night of the attack.

The item, in bad French, was a translation from the bad English of a New York newspaper telling of Weyl's departure for Madagascar. It was filled with the exalted pseudo-science of which newspapers are fond and contained much ingeniously sketchy biographical and geographical data, but its appeal was obvious.

The American leaned forward over the cups.

"Does your fort boast a typist?" he asked. "Lieutenant Dubosc has probably already told you of the terrible experience we have had. I am anxious to make my report on it through the newspapers."

"Monsieur," said Major Larivet, gravely, "he died an hour ago by my side. I know nothing but that I have lost many men from my command."

"So . . ." said Weyl, "All the more reason I should make my report in writing. I need not conceal from you the fact that we are facing a danger which threatens not merely Fort Dauphin and Madagascar, but the entire world."

There was incredulity on the major's face, but he replied courteously, "My means are entirely at your service, gentlemen."

Beginning his report with scientific exactitude, Weyl included Duperret's letter, noted the sudden midnight attack on the steamer and went on to the details of the expedition:

". . . . For hours after the attack," he wrote, "we were unable to get anything like control out of the chaos in the camp. I think another attack of these unspeakably loathsome 'Umbrella Beasts' would have brought complete panic; certainly hardly any rifles but Duperret's and my own would have met them.

"We could not hope to escape by an immediate dash for the fort, though it was less than thirty hours' march away. The beasts seemed to be on every side, and they would have every advantage in that jungle, where we would have been instantly swept into the trees by their swinging tentacles.

"Fortunately, these hideous monsters appeared to have gathered their fill of human food for the time being, and meanwhile the idea of fire occurred to us. All the wood we could gather without too closely approaching the trees was collected and heaped in piles about five feet apart in a complete circle. These were set alight, and we huddled in the center of the blazing ring, almost roasted by the heat, but feeling infinitely safer. With the coming of day, the heat was almost intolerable, but we gained confidence as it became apparent that the beasts would not dare the fire, though we could hear them whistling in the trees.

"Our situation was bad. The supply of wood was not inexhaustible, and that of water was already used up. I am convinced that these beasts are possessed of a comparatively high intelligence. The manner of their attack, the character of the one killed in the battle, led to this conclusion: and they were evidently deliberately laying siege to us with the intention of starving us out of our refuge.

"Our rifles were useless, and to make a sudden dash through the lines would certainly involve the sacrifice of most of those present—perhaps all. So we sat down to plan a way out. Obviously, we had to find a means to make ourselves immune to their attacks.

"I thought I had it when I remembered that no barbarian, beast or insect, would tolerate castor oil. Des-

perate as was our situation, the idea of escaping a deadly and horrible death by means of that homely remedy made me want to laugh hysterically. I remember Duperret watching me trying to smother the urge, looking queerly at me, quite obviously doubtful of my mental balance. His speculative and startled glance added to the absurdity of the thing, and I almost lost my self-control. I realized we were all on the edge of madness

"The idea had, of course, to be discarded. We had castor oil among our medical supplies, but barely enough to discourage the insects of the tropical jungle; certainly not enough to smear ourselves from head to foot to keep off those giant monstrosities menacing us from all sides.

"The solution we hit upon finally may not have been the best, but it was simple, and like many another, did not occur to us till we were ready to give up in despair. Duperret, Dubosc and I had spent the entire first day of our siege discussing and rejecting ways and means, and we had just about decided that the only thing to do was to make a concerted dash into the jungle, firing into the trees, and trusting to luck and mobility to carry us through, when the lieutenant startled us with a sudden leap, and shouted something wild, something we did not understand.

"We feared for his sanity as mutely we watched him dashing about furiously from spot to spot in the clearing, tearing up handful after handful of liana grass and throwing them on the fire.

"When, however, a dense cloud of thick, choking, black smoke rolled up, and when Dubosc turned to us with a triumphant light in his face, we understood dimly what his idea was, and in a frenzy of relief several of us danced foolishly in a circle about the fire and its column of smoke.

"In a council that followed, we decided that our attempt to escape had better be made during the day, since we had all noticed that there was less activity among our besiegers during the hours when the heat was most intense. We kept our fires burning, then, throughout the night until dawn. Nobody slept; we were too apprehensive, and too busy improvising torches for our protection during the march. The beasts, evidently fearful of the fire, remained in their trees all that night, and though they continued to whistle about us (this seems their sole mode of communication) there seemed to be less whistling from the side to which our smoke drifted. This assured us that our lieutenant's plan would work.

"At dawn, bearing our smoking flambeaux, we set out. Arms and equipment were useless; they were discarded. To prevent the panic that appeared imminent among the men, Dubosc threatened to shoot down any man who left the formation, and to insure obedience, only Duperret, he and myself were allowed to retain revolvers.

"As we neared the trees, there was crowding among the men, but a few sharp words brought them to their senses. We halted just at the edge of the clearing, and Duperret and I leading the shivering company, threw our branches down under the trees and piled more wood on to make a little blaze. There was a discernible commotion in the foliage above us, but we could see nothing. When the noises subsided, we ventured in a hundred yards or so, and built another fire.

"This scheme was resorted to at intervals all along our march. Progress was necessarily slow. At some dark spots, where the jungle was thick, it was necessary to proceed in narrow files, and these were the most dangerous, not only because of the 'Umbrella Beasts' but also because of the fright and impatience of the men.

"It was in one of these places that a casualty occurred. One of the chasseurs suddenly broke from the line and ran, shouting madly, to wave his torch at a vinous growth hanging from a tree, which he must have taken for a tentacle of one of the beasts. He stumbled, his torch flying from his hand as he fell. His danger then evidently deprived him of what senses he had remaining, for, regaining his feet, he ran, not back into the line but deeper into the jungle. We heard a strangled cry in a few moments. That was all. None of us dared to leave the company to bring him back.

"Another time, a man went raving mad, and made a violent attack on Dubosc. Before he could be caught, he stabbed that brave man twice in the breast.

"Now, as to the animals which attacked us. I had one before me for some sixty hours, though with little opportunity to examine and none at all to dissect it. My observations, though somewhat scanty, lead me to the conclusion that we are dealing with a hitherto unknown member of the great mollusk family. The family includes the octopus and oyster, neither with red blood, and it was the nearly colorless fluid that puzzled me about the blood of the beast that attacked the ship.

"The beast that was killed at the camp had a larger body than any known member of the family, and tentacles at least fifteen feet in length and correspondingly powerful. A protective covering of chitin appears to have been developed, and due to the lack of any internal skeleton and the fact that the muscles must base on it, this protective covering to its body is of a thickness and strength sufficient to be quite impervious to rifle bullets. The one we killed had received a bullet full in the eye, which passed through into its brain.

"It is this brain that offers the most remarkable feature of these creatures. A brief investigation shows me that their brains are certainly larger than those of any animals except the big apes, and probably as large as those of the lower races of man. This argues an intelligence extremely high, and makes them more than ever dangerous, since they can evidently plan acts and execute them in concert.

"They have eight tentacular arms, covered on the lower side with the usual cephalopod type of suckers, the center of each sucker being occupied, as in some species of octopus, by a small, sharp claw. The thickness, and therefore the muscular strength of these arms, is enormous. It is no wonder men proved utterly powerless against them.

"I am unable to say anything about either their method of breeding or what device they have arrived at for breathing air; probably some protective covering keeps the gill-plumes moist, as in the crayfish, making access to water at times necessary.

"In the face are two very large eyes, capable of seeing well in the dark and located directly in front of the large brain. The mouth consists of a huge beak, razor-edged. There are no teeth. Add this formidable beak to their extraordinary powers of swimming, their swift progress on land, their giant strength and their great intelligence, and it becomes evident that the human race is faced with a great peril.

"There is nothing whatever to prevent these animals from swimming the ocean or attacking the greatest city. One of these beasts could kill a hundred people in an hour and hardly any weapon we possess would be of the slightest use . . "

As he wrote, Weyl's mind was again filled with the terror of that mad march through the jungle with the "Umbrella Beasts" whistling on every side, and his imagination shuddered at the picture of London or New York under an invasion from those grim Madagascar jungles; all business stopped, every door barred, the octopuses triumphantly parading the streets, breaking in here and there and strangling the last resistance of families cowering in corners, powerless against the invulnerable and irresistible animals. Here and there some squad armed with dynamite or some other weapon more powerful than rifles, would offer a brief resistance, but they too would go down in time. Civilization throttled, and in its place a ghastly reign of animalism. . . .

CHAPTER V

MAJOR LARIVET was inclined to skepticism over Weyl's report. In a brusque, but kindly way, he had suggested that it be delayed, ". . . till you have had time to think it over. Perhaps, when the effect of your experience has—ah—worn off—"

Weyl gazed at him in astonishment at this suggestion, but he was to remember it forty days later.

Meanwhile, there was nothing to do but wait till the report reached the outer world, and some echo of it in the form of men, aeroplanes, scientists with their instruments and death dealing concoctions arrived to wipe out that terrible blot. And during the waiting, even Major Larivet's skepticism vanished under the pressure of events.

The octopuses, as Weyl called them, had confined their raids to isolated districts up to the time of his expedition, but now, acting apparently upon a well-formed plan, they became bolder and began a systematic extermination of every native in this part of the island.

Three days after the return of the expedition, a native runner dashed in half-crazed with fright to report a twilight raid on a whole village, from which hardly a soul escaped. As the days drew on, this ominous news was followed by such demonstrations of the power and intelligence of the octopuses as confirmed Weyl's darkest fears.

A village on the coast was attacked, and the natives, taking to their clumsy boats to escape the terror by land, found themselves no less helpless on the water, the only news of the dreadful event coming from some native who had gone there and found only a circle of empty huts.

Alarm of panic proportions spread like wildfire among the Malagasy, and in a stream that became a torrent they poured into Fort Dauphin for protection.

Daily the reports of depredations showed that the octopus terror was spreading and coming nearer, and Major Larivet found himself faced with the problem of feeding several hundred hungry and frightened natives with means wholly inadequate.

The climax came with the arrival of four men, or rather, shadows of men, who babbled that they were the last of the great tribe of the Tanósy. Fighters to the core, instead of flying, they had stood out in battle array against their antagonists. The result had been unspeakably horrible—they had seen their comrades torn to pieces before their eyes, and the women and children hunted down.

It was while things were in this state that the little tin-pot mail boat arrived with its cargo of supplies and European newspapers.

Weyl's heart rose as he marched off to his quarters eagerly with the papers under his arm, but it sank like lead when he and Duperret opened journal after journal, in quick, disappointed perusals.

Not one, they perceived, took the matter seriously. Weyl's phrase, "Umbrella Beasts," had been seized upon by humorous commentators with gusto, rolled on their tongues and spun off their pens to tickle the ribs of readers. Of serious acceptance there was not a sign. The general tone of the papers was one of howling derision. It was suggested that Weyl had gone crazy, that he was a publicity-mad mountebank. But the more usual spirit of the papers was that of the French wit who blared: "Weyl's Umbrella Beasts; Inseparable companions for that rainy-day walk. No one acquainted with the dictates of fashion can afford to dispense with this novel combination of household pet and Protective Implement!"

And the cartoons . . . !

Weyl looked up from the papers to meet Duperret's glance. There were actual tears in the Frenchman's eyes.

"It seems to be up to us," said Weyl, after a moment. "Well—I am not a rich man, as it is reckoned in America, but I can command a considerable amount of money, and can borrow more. I will write a cablegram to be sent off immediately, and have every cent spent for materials to fight this thing."

Together they composed the carefully worded message to Weyl's assistant in the laboratory in New York, and together they took it to the dock and delivered it to the captain of the boat with the most urgent instructions to send it the moment he arrived at Andovoranbo.

CHAPTER VI

NOT long after daybreak the American was roused from his sleep by a confused shouting under the window. Hurrying into his clothes, he dashed out to see the little mail boat wallowing crazily off the jagged rocks that guarded the entrance to the harbor, her funnels silent and smokeless. Within

ten minutes she was right among the breakers, pounding in the surf, but there was no sign of officers, crew, or lifeboats.

It was late in the afternoon before he could secure a native dhow to get out to the wreck. When he stepped on the slanting deck of the wrecked boat, Weyl found what he had feared. There was no one on board—only a blood-stain here and there.

Every man in the settlement was quite capable of visualizing what had happened. Writhing, black-grey tentacles reaching up out of the midnight sea, the swarming of hideous bodies over the ship, relentless groping arms searching out the screaming seamen, the fatally prehensive embrace of repulsive flesh . . .

That very night Fort Dauphin received notice that it was under close siege. A mile out on the northeast beach two natives were taken by an octopus that came unexpectedly out of the water on them, and on the oppsite side of town a soldier was pursued along the sand right up to the walls of the fort. Later the report ran in that one of the sentinels on the west side had disappeared.

But neither Weyl nor Major Larivet was quite prepared for the bold attack on the fort two days later.

Twilight was just blueing the edges of the jungle a quarter mile from the bastions of the fort, and the three white men were smoking gloomily over their coffee, when a shot and a shout from the sentry brought them to their feet.

They hastened to the bastion. Out of the jungle in the same regular, military order they had preserved on that fatal night of the first attack, came the octopuses, huge ugly heads bobbing above, undulating tentacles below.

Larivet, with a gleam in his eyes at being at last able to come to grips with the enemy, snapped sharp orders as the artillerymen swung the two "seventy-fives" into position. Duperret and Weyl watched breathlessly, heedless of the wild cries of alarm that issued from the natives who had seen the octopuses

The mouth of the gun swung down slowly. An order. Brief motions, the crash of the discharge, and right in the center of the advancing line a terrific burst of flame and dust.

An octopus staggered, stumbled with wildly flailing arms and flopped inertly to the ground.

Crash! The bright flames from the two guns mingled, and in the flare of the explosions three more of the monsters went to oblivion. They were not invulnerable, then! There was a ray of hope!

Weyl found himself cheering frantically. He felt a pressure at his shoulder and saw a couple of natives beside him, their courage revived. The black artillerymen worked like mad. They could not miss at that point-blank range.

All down the octopus line were gaps, and the wounded beasts strove to right themselves. They wavered, broke, and in disorderly flight headed back into the jungle, pursued by the avenging shells of the seventy-fives till they had passed from sight

The natives were crowding about, shouting with emotion and hurling epithets after the retreating monsters. They were saved—at least for the time being.

But the conference of the three white men that night was grave.

"We have not really accomplished very much," said Weyl, "except to show them that we have weapons against which they are not invulnerable. I don't think they will attempt to rush the fort again, but they are terribly intelligent. They may try a surprise attack at night or from the sea, or may even give us a regular starvation siege."

"No, they will not soon approach your guns again," agreed Duperret, "but what are we to do if they attack the town from the other side. The fort surely cannot hold all the people you have here."

"Gentlemen," said Larivet gravely, "in that case we can only do our duty. I shall have one of the guns moved to the other side of town. Meanwhile we can

Reproduction of a photograph of a giant octopus. The eight ("octo" meaning eight in Latin and Greek) tentacles, give it its name. "Pus" is taken from the Greek for "foot."

do nothing but wait till someone comes to help us."

"Or until we go to them," from Weyl.

Duperret paled slightly, and stood up. "I offer myself as a messenger," he said. "I will take a dhow out. If I am attacked, well, I know where to shoot them—in the eyes. I—"

"No, Raoul, no," said Weyl, "let me try it. It would be simply—"

He was interrupted. A native servant entered excitedly.

"Him one piece boat in town," said the black. "White man comes."

"Boat? White man?" queried Larivet, puzzled. A cheery voice in the doorway answered him, "I say, is anybody here?" it said, and in marched an extraordinary figure of a man.

A large sign saying "Englishman" could not have stamped his race more effectively than his expression of cheerful vapidity. His clothes were white, scrupulously clean, and meticulously pressed, and in one hand he bore what looked like a small fire-extinguisher. He extended the other toward Weyl.

"You're Weyl, aren't you?" he said. "Mulgrave's my name; Henry Seaton Mulgrave. Earl of Mulgrave and Pembroke, and all that rot. At your service."

"Of course I remember," said Weyl cordially. "You gave that extraordinary paper on the Myxinidae before the British Association. Ah, that paper! Allow me," he said, and translated into rapid French for the benefit of Larivet, "to present the Earl of Mulgrave, one of the most distinguished of living scientists."

There were bows, a drink offered and accepted, and the visitor, carefully placing his fire-extinguisher in the corner, curled his lanky frame up in a chair.

CHAPTER VII

"SERIOUSLY, though, y'know," Mulgrave said after finishing his whisky and soda, "if it hadn't been that I was a bit in the doldrums at the time your report came out, I believe I would have joined the rest of the world in thinking you somewhat—er—balmy, despite your excellent reputation. But I needed a cruise anyway, and came on the chance there was something in it; sort of a sporting venture, d'y'see? It did seem quite a bally cooked-up sort of mess, the way those journals played it up, y'know."

Weyl's nod of understanding was followed by an inquiring look at the queer contrivance the Englishman had placed in the corner.

"Flammenwerfer," Mulgrave answered the silent query. "Germans used 'em in the war. Superior bit of frightfulness. Shoots out fire. And really quite effective, even against your bally octopuses, I assure you."

"But," Weyl exclaimed, "you can't possibly—"

"Oh, yes, I have," Mulgrave smiled. "The ruddy animals hadn't the decency to wait for a proper introduction, and paid us a visit on the Morgana—my yacht, y'know—just outside the harbor. I fancy when we got through with them they were rather scorched. Morgana was war-built, and has steel decks, so we didn't mind putting the Flammenwerfer to work against them. We've got what's left of one stretched out on the deck. Others got away."

Weyl breathed a sigh of relief and thankfulness that this casual Englishman had come prepared. How easily the mail boat disaster might have been duplicated! He shuddered.

"Well then, part of our horrible problem seems to be solved, thanks to your foresight, Mulgrave. At least we have a means of wiping them out. But here's the difficulty. It will take years, killing them off one by one, as we'll have to do with your pump gun. I tell you, they infest the whole island, thousands of 'em. They're increasing and multiplying faster than we could possibly kill them off. That's the only way I can explain this recent outbreak. They were few enough in number, before this, to remain in obscurity except in isolated districts, and known only to ignorant and superstitious natives." Weyl's forehead creased in perplexity and worry. "If they keep on—well, they'll need the whole globe. And that means only one thing; man will have to get off it to make room for them. They're powerful enough, and intelligent enough, to have their own way about it, too. Don't doubt it. Unless—"

Mulgrave evidently did not share Weyl's anxiety, though he did not seem to underestimate the danger. "I'll finish that last sentence of yours, Weyl, although I'll admit things are a bit worse than I had thought. But meanwhile, let's look over our resources, and try to find out a bit more about the nature of the beast we're up against. The post-mortem of that lamentably deceased visitor on the Morgana's deck ought to tell us something of his weak points. Do you want to go out there now?"

With chairs tilted back against the cabin of the Morgana, the three men regarded the sundown sky in a moody and depressed silence. Their dissection of the octopus killed by Mulgrave's pump-gun had added little to their knowledge of the anatomy of the menacing brutes, save a confirmation of Weyl's hypothesis that their breathing, while on land, was conducted by means of the same gills which supplied them with oxygen in the water, protected, like the lobster's, by a covering of chitin.

Mulgrave's chair scraped on the deck. "Well, let's get back ashore," he said. "Can't do any more now I fancy, unless they decide to stage a party for us this evening."

"It comes down to this, then," said Weyl, continuing the conversation which had been abandoned with the end of their anatomical researches. "Fire, or some kind of guns heavier than the ordinary service rifle, are the only things that will do any particular good."

"Have you thought of gas, my friend?" asked Duperret.

"Huh," answered Weyl shortly. "Airplanes? Chemicals? And what about all the men on the island—for we should have to cover it all with gas to be of any use."

"The time is rather short, too, I fancy," chirped Mulgrave. "How long will provisions last?"

"Not long," agreed Duperret, moodily. "A week, or perhaps a little more."

"Then, within seven days, or at the most ten, we

must concoct a plan and put it into force—a plan that will wipe out God knows how many of these unearthly enemies of the earth. It must be extermination, too, for if one pair were left to breed . . . I'm more than half convinced that the thing is hopeless. Yet I don't like to show the white flag. These are, after all, only beasts. Super-beasts, it is true, but the equals and heirs of man? I hate to believe it."

"But, my friend, you forget the force of mere numbers," said Duperret. "So many rats could easily overpower us, guns and all, from mere lack of time to kill them as fast as they came on. Comparative values, as of man and beast, are insignificant."

Weyl nodded a pessimistic agreement.

"There's only one chance," he said. "If we could find some way to attack them in the water—they must go there to breed at least, and I fancy they must make periodic visits to the water to wet their gill plumes in addition."

CHAPTER VIII

IT was three days later.

Another octopus attack on the little fort had met with a bloody repulse, and a score of the great bodies lay at the edge of the jungle in varying stages of decomposition, where they had been blown to extinction by the swift shells of the seventy-fives. A conference was in progress on Major Larivet's verandah; a conference of beaten men.

"As a last resort," Duperret was saying, "there is the open sea and Mulgrave's yacht."

"Why, as for that," Weyl answered, "it wouldn't hold a tenth of us, even crowded to the rails. Besides, leave those natives behind? Damn it, they trust us."

"It would hardly be cricket," said Mulgrave. "What of the mail steamer? Aren't they apt to send someone to look us up when she does not appear?"

"Not even yet is the boat due at Andovoranto," said Major Larivet, "and there is the time for the news to reach Andananarivo . . . The lack of news to them will be but a token that we have pacified the Tanósy and are in need of nothing."

"Yes," Duperret agreed, "I know these officials. They are aware of something unusual only when they have seventeen dossiers, each neatly tied in red tape and endorsed by the proper department head. My friends, we are alone."

"Which means," Weyl continued, "that we have about a week more to live before the food runs out or they overwhelm us. And then—good-by world of men!"

There was a little silence, broken only by the sound of Mulgrave puffing at his pipe. It was ended by a shot and a shout from one of the sentries at the western side of the fort; the signal of another attack.

During that night the great octopuses twice fought their way down to the fort, and twice were repulsed, though the second effort, longer and more violently sustained than the first, only ended when Mulgrave, called in the crew of his yacht and their flammenwerfer.

As the following day drew on, the unrest in the jungle about the army post became more pronounced. Major Larivet, Duperret, and Weyl, worn with lack of sleep, kept vigil by the little counterscarp, listening to the innumerable whistlings and rustlings so near to them, while the soldiers and natives, visibly shaken, were difficult to keep in line.

When evening came, it seemed as though the octopuses had concentrated their forces for a great drive. The whistlings had increased to such a volume that sleep was nearly impossible, and as soon as the sun went down, the movements of dark forms could be observed where the animals were silhouetted against the sky along the beach.

The first attack came half an hour later. It was a sporadic outburst, apparently, consisting of only three or four individuals, and these were quickly dispersed or slain by a few bursts from the seventy-fives. But it was followed by another, and another, the numbers of the attackers ranging all the way from three to fifteen or twenty. Unlike the previous attempts on the fort they were frenzied and unorganized as though the directing intelligence behind them had suddenly failed. Immune to fear, the living octopuses came right on, through the hail of fire and died at the foot of the rampart, or dashed over it even, to be wounded to death by bayonets fixed on long poles with which the black soldiers reached and stabbed frenziedly at eyes and softer parts.

Once, during a lull in the combat, the commandant and Weyl were called to witness a monstrous duel, at the very edge of the fort between two of the hideous beasts. The ungainly creatures locked in each others' tentacles, rolled hideously together, tearing at each other with their great beaks, till a Senegalese reached over with one of those improvised bayonet pikes and dealt first one and then the other mortal stabs. Weyl felt a singular sensation of nausea.

Toward dawn it became evident to the exhausted artillerymen and their wearied leaders that the octopuses were now aiming not so much at conquest, as at escape. They no longer blundered into the fires that had been built about the fort and village; no longer hurled themselves upon Mulgrave's crew of flame-throwers and the shells of the seventy-fives. They seemed to be heading for the beach, to be striving to reach the water.

And when dawn broke, the men in the enclosure saw a few stragglers from the hideous army at the edge of the jungle, making their way, like the others, with ungainly flappings and swishings, always toward the beach. It was impossible to watch them without feeling an almost physical sensation of illness, of sinking. But what did it mean? No one among the harassed defenders of Fort Dauphin was prepared to say.

CHAPTER IX

MULGRAVE'S wearied crew had gone aboard their ship, and the white men, refreshed by a few hours' sleep and a bath, were discussing the question. "I am of the opinion," Weyl was declaring, "that they have certain periods when they must wet their gill-plumes again, and last night's disturbance represents one of those periods. If we could only attack them at such a time—"

(*Continued on page* 157)

DR. BRITTLESTONE'S METHOD

by Samuel M. Sargent Jr.

Author of "The Telepathic Pick-Up"

WHEN Dr. Aro Brittlestone came through the door of my inner office I had the impression of a bull charging in at me. Brittlestone was an inch or two above six feet in height, big boned, and big framed. His skeleton would have delighted the eye of a bone specialist, or so I imagined from the outer appearance of the man. This structure carried a maximum of flesh, and a minimum of fat. He weighed over two hundred pounds, all solid, hard bone and muscle. He was a crudely constructed man from his huge feet to his coarse, black hair, and there was a common strain in him that had been but thinly concealed by his education, his advent to a society that was above him, and the better environment that success had given him. He had acquired by hard work and driving ambition an ease of manner and a pseudo-refinement that were really to his credit.

I had never met Brittlestone until the day he entered my office, coming without appointment, pushing his way in past the attendant and a whole roomful of my patients. But I had heard of him long before, when his sanatorium in the Mendalato Mountains had gained some fame, a fame that had never waned, and that was even now steadily increasing. He himself seemed to be a quite skillful physician, and the many who had come under his care were only too ready to speak a good word for the sanatorium. He catered to the extremely wealthy, I understood, but he kept a certain number of charity cases always, some ten or twenty. In the six years that his sanatorium had been in existence, he had, I imagine, put away quite a sum; he maintained a place in society, a place he had carved out for himself by sheer force and lavish expenditure. He was known in his circle, I believe, as generous to prodigality. Yet I never saw a man who looked so avidly on money.

HERE is another story by Samuel M. Sargent, Jr., who comes rapidly ahead as an authority in scientifiction. The thoughts contained in this story are certainly not only most unusual, but the science is extraordinarily good. You will not know until the final ending just what happened, and you will find the ending bizarre and amazing enough. A most excellent story throughout.

The morning I met him, when he loomed so huge in the doorway, had promised to be a particularly busy one for me. I glanced up in annoyance at his abrupt entrance, but Brittlestone apparently failed to notice my attitude.

"Dr. Strang?" he asked heartily, his thick lips parted in a smile. He came to a pause, close before me, and gazed down from his commanding height with cordiality in his small eyes. "I'm Brittlestone of Happy Lane in the Mendalatoes."

Content that this was introduction enough, and evidently certain that his name was a familiar one to me, he thrust forth a hand that much grooming had failed to make attractive. After a moment of hesitation, I shook hands with him, invited him to be seated, and waited questioningly and none too cordially to learn his mission. He dropped into the chair, crossed his legs, and puffed once on his huge, black cigar. This was the only time that I ever saw him without the cloak of cultivated, watchful dignity that had almost become a part of him. Perhaps his lapse into a coarse self-sufficiency on our first meeting tinged my whole opinion of him, and overshadowed later impressions that would have been more pleasant.

"Fine spring we're having, isn't it?" he remarked, evidently in no hurry to state his object, and unconscious that he was taking up time that I could better have devoted to my practice. Thereafter he rambled on casually upon unimportant subjects until I was in an excellent murder mood.

But there was a fascination about the man that almost reconciled me to the lost time, and prevented my brusquely terminating the interview. The ruggedness of him, his huge bulk, and the stark coarseness of every feature made a striking ensemble, with the veneer that he had acquired. I noted particularly his very peculiar eyes. They were almost hidden by huge underlids, until they gazed from small slits that scarcely revealed the deadness of the iris, and the lacklustre light of the pupil. His carefully trimmed, black Vandyke beard was thin so that the outlines of his chin showed through.

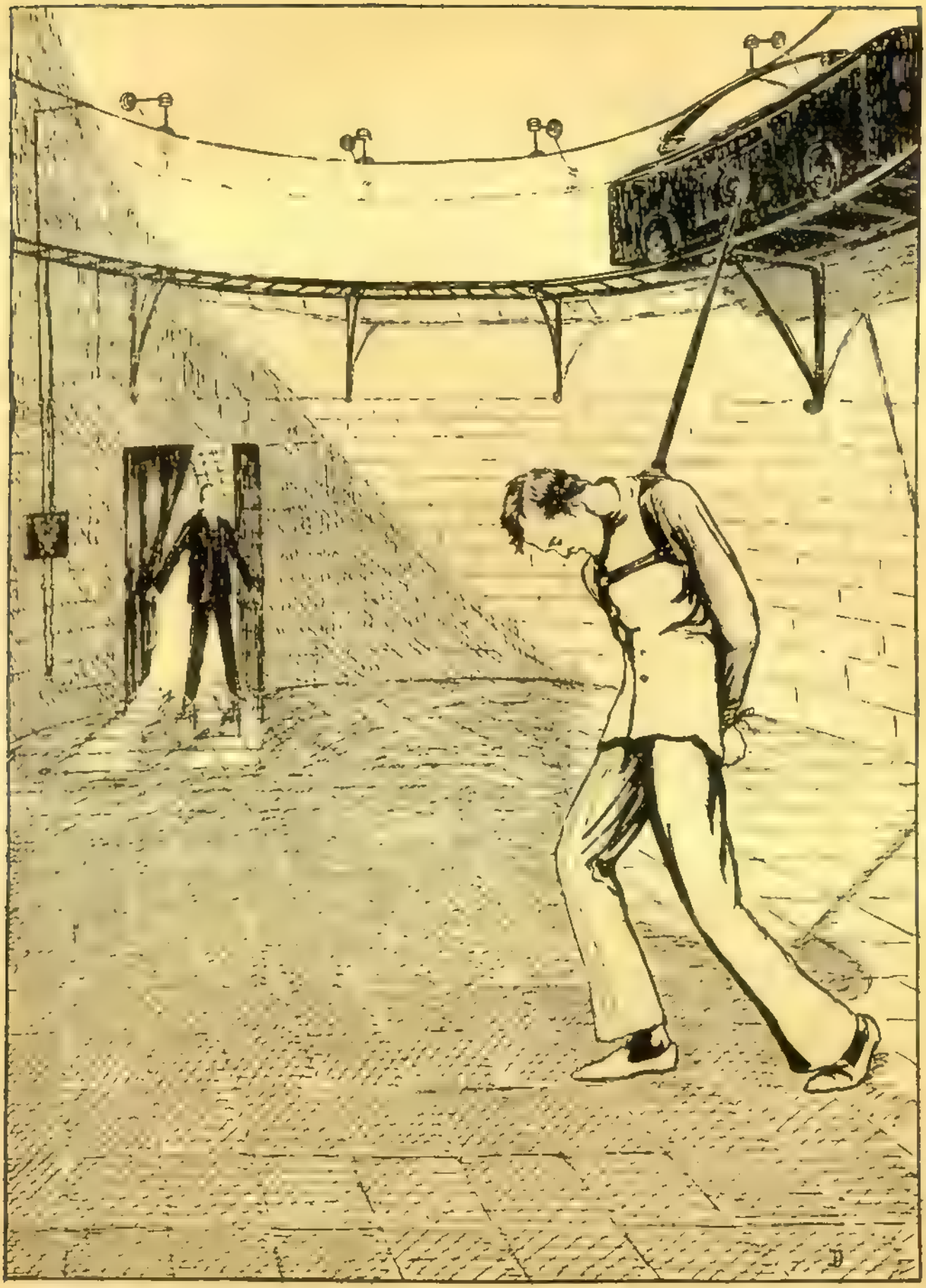
Brittlestone, as he talked along, was studying me, too. I had the feeling that from their flesh burrows those dull-lit eyes were reaching out, taking every impression of me, and storing them away in an alert, active brain.

Whether impressed with my impatience, or rebuffed by my monosyllabic replies, Brittlestone presently lost his ease of manner, and became obviously embarrassed. Abruptly he rose.

"Well, doctor, I'm afraid I've taken up too much of your valuable time, and I humbly apologize, but when I started up here to see you, I had a certain proposition in mind." He hesitated. "It—well, it really was nothing vital, and hardly warranted my intrusion. Something I shall broach to you at another time perhaps. Perhaps I'll be in, and see you sometime again soon."

"Do so," I replied, shaking his hand.

He stood hesitantly a moment, seemed about to add



Then I stared in amazement. A man, lagging of step, was circling the room. His hands were manacled behind him. He was apparently worn out, and now and again he sighed in agony. His head was drooping, his face lined with fatigue . . . I saw that he was held up by a harness that was strapped to his shoulders, and that this harness was fastened to a motor on a high track on the wall. . . . The man, pulled onward by it, was forced to walk continuously.

something, then abruptly turned away, and let himself out of the side door. I stared thoughtfully at the translucent pane as his shadow left it, and I felt somewhat baffled and curious at his visit. Then other matters swept away speculation on the incident.

It came to my mind several days later, when I was called upon to treat one of my oldest, and certainly wealthiest, patients, James Hart, the packer. Mr Hart had, for the past year, been suffering from digestive disorders, and I had repeatedly advised him to go to a sanatorium, but without effect. He had never been inclined to accept advice. Indeed, he had forged through to his great monetary success on his quality of flouting it. But whereas in the financial world he had been rewarded for his independence, in this case he paid dearly.

I HAD a call from the Hart home. I found Hart in bed, his face rather anemic, his eyes droopy He smiled up at me feebly, and there was a despondent note to his voice.

Although Hart's social sphere was removed from mine by some millions of dollars, we were close friends, and had been since the years-ago time when I had been a student of medicine, and he had earned his living as a clerk in the packing house he now owned.

"Hello, Tom," he said. "It's got me down good this time. Same old trouble. I'm afraid the Lord didn't give me a very good stomach."

"Not at all," I returned severely. "Your stomach's all right, or would be if you gave it any chance at all. You wouldn't have had this attack, if you had taken my advice. Your whole system needs toning up, Jim. A couple of months at a sanatorium would set you up as fit as a fiddle. All you need are regular hours, regular meals, and a proper diet."

"And if I don't go?"

"Well, if you don't go—I'm afraid you'll be a pretty sick man, Jim."

He considered a moment.

"That's what Doc Brittlestone said," he returned. "I was talking to him yesterday. He told me he was a friend of yours, Tom. Fine man, isn't he? I only met him a week ago, but we're good friends already. Met him out at the Benvo Club. He's an excellent golf player. He gave me an examination yesterday—not in a professional capacity—but just when he heard I was sick, you know. He agrees that unless I go to a sanatorium, I'll be in bad shape. He suggested that I come to his place. That's one reason I called you, Tom. I wanted you to take another look at me, and if you still thought I needed the treatment, I wanted to ask you what you think of Brittlestone's sanatorium."

"To the best of my knowledge, it is all right, if you wish to go there," I replied, a trifle stiffly. "I have never heard anything against it, and I have heard some good reports upon it. You know, Jim—I've named it often enough—that I always advise East Lake Sanatorium. I've recommended it for years, and have never had a complaint on it. I know that it is excellent in every respect. I still advise it to you, Jim. But if you prefer Dr. Brittlestone's, why, as I said, I know nothing against it. But the main thing, man, is to go to one of them immediately. I'll guarantee that a couple of months will work wonders with you."

Hart shifted his position, and laid his head back wearily on his pillow.

"Well, I'll sleep on it. In the morning, I'll make arrangements to go to one of them."

Content with this promise, I left. I was somewhat chagrined at Hart's having accepted the services of another physician, even though it had been only in a "friendly" way. While he naturally had the right to gain all the medical advice he wished, and to go to any sanatorium he desired, still my long connection with him as family physician and friend gave me, I felt, a right to more consideration than I had been shown. I might, at least, have been apprised beforehand.

Toward Brittlestone I felt an increasing dislike. He had, in a way, abruptly shouldered me aside, and taken a case away under the artifice of a friendly call. I had no doubt that he had deliberately cultivated Hart's acquaintance for the purpose of obtaining another wealthy patient for his sanatorium. I remembered his strange call upon me, and wondered what connection it might have with Hart. Possibly Brittlestone had intended to broach the subject of sending Hart to his own sanatorium, but had felt at a loss how to open the matter with me. I felt quite bitter toward Brittlestone, and vastly displeased with Hart, as I drove back to my office.

The next morning I received a message from Hart saying that he had decided upon Happy Lane Sanatorium, and would leave town that afternoon. What displeasure I felt at his choice was displaced by satisfaction that he had at last been prevailed upon to take proper treatment. After all, Happy Lane Sanatorium was fully as good as East Lake.

In the following several months I received regular letters from him, each cheerier than the one preceding. Four months after he had entered Happy Lane, I received the following:

Dear Tom:

I thought I would drop you a line to let you know that I shall be back in the city in two weeks at most. I am feeling better than I have for ten years. It is all due to Dr. Brittlestone. He is really a wonderful physician, Tom. And he is a wonderful man in every way. His kindness is unbounded. He has twenty charity patients here, and he attends them all personally. He seems more interested in them than in the paying patients even. His ambition is to turn Happy Lane entirely into a charitable institution, and he intends to do so as soon as he has money enough. Then he may build another place for paying cases. He is a dreamer and idealist of the highest type, and a wonderful man in every way. Besides my gratitude to him for saving me—and he assures me I would have been dead in a few months—I admire him and like him for his noble qualities.

The sanatorium is situated in a paradise. The scenery itself is an incentive to health and happiness. I have been——

It was a long rambling letter, with a care-free note that was remarkable in Hart. He described his activities with a zest and buoyancy that made me think longingly of vacation. He had been hunting and fishing, and swimming during the past week. He had been on long tramps in the mountains. He was a little complaining about the food. Brittlestone would not allow him enough, he said, and he was always hungry. His letter was filled with such things, but the excerpt I have quoted was that which most interested me. I felt no enthusiasm at his eulogy of Brittlestone. While my aversion may have been due in some degree to professional jealousy, I like to think that it was divination on my part of his true character. Whatever the cause, I read that paragraph of Hart's letter with distinct displeasure. Evidently, Brittlestone had over-emphasized the seriousness of Hart's condition, and played upon the hypochondriac instinct that is in all of us. Certainly he had not saved the millionaire's life. I began to see why Brittlestone's patients were so loud in praise of the sanatorium. Brittlestone appeared to me more and more as a wiley money grabber, and possibly even a quack and scoundrel.

I WAS totally unprepared for the shock of the letter I received ten days later:

Dear Tom:

Probably you expected me to be home by this time. But I have suffered a setback in health. The day before yesterday when I rose, I felt very tired, although I had had a good night's sleep. All that day I felt as tired as though I had been without sleep for a week. Yesterday I felt worse fatigued than ever, so much so that I refused to get up. I slept all day, and night—steadily, only waking once or twice—but this morning I am no better. It is nothing serious according to Dr. Brittlestone. He says that I have auto-intoxication from wrong eating. But I have eaten only the prescribed diet. I am worried over my condition. I would like to have you come up, and give your opinion, as I think Dr. Brittlestone is mistaken in his diagnosis, and that I may be taking some virulent disease. Are these the symptoms of sleeping sickness? I wish you would come right up. I suggested this to Dr. Brittlestone, and he promised to notify you by letter, as the telephone here is out of order. But I thought I would write you myself to be sure you would come. I am having Brand mail this, as Dr. Brittlestone has forbidden my writing any letters or receiving visitors for the next few days. He fears that any excitement or exertion would be harmful. I hope you will come up, Tom, as soon as you can get started.

Hart.

Hart's letter alarmed me greatly. Such a sudden lassitude is often the prodrome of some serious disease. At Brittlestone's diagnosis I scoffed. At best it was no tribute to the efficiency of his institution. I started immediately for Happy Lane.

It is a good sixty mile drive, and I was the better part of the day reaching the little mountain town of Harkinville. Then a two hour climb up a winding canyon road brought me to Happy Lane Sanatorium, huge, towering, and white, with great green lawns, and many white out-buildings. Enclosing the extensive grounds was a high and ornate iron fence.

Within, the building was entirely of white tile, with spacious, gleaming halls that carried the very atmosphere of sanitation. But, as in all things Brittlestone did, this whiteness was more an appeal to impressionability than a factor toward health. White is known to have a harsh effect on the convalescent system. Much more beneficial is some restful color, preferably one liked by the patient. The office was magnificently but tastefully furnished, with really beautiful tapestries and rugs. Behind a mahogany desk sat a tall, lean, remarkably hard-faced woman. She glanced up at my entrance, and gave me a searching look.

As I approached the desk, she informed me with utter finality that visitors were allowed only upon Thursdays. Then she returned to her work. This reception incensed me greatly, inasmuch as she had not yet learned my object in calling, and since my medicine case must have told her that I was a physician.

"This is a professional visit," I said with severity. "I have a patient here, and have received a hurry call."

"Oh, that is different," she returned. She paused. "Whom do you wish to see?"

"Mr. Hart. Will you kindly direct me to his room?"

"You will have to see Dr. Brittlestone first. He is in his laboratory, Room 105. I will show you to it."

At that moment, Brittlestone appeared in the doorway. Upon seeing me, he started slightly, and a fleeting look of what might have been alarm, or annoyance, crossed his face. Then he advanced smilingly.

"Well, doctor," he said. "This is indeed a surprise. I had hardly expected you so soon. You received my message, then?"

Recalling that Hart had sent his letter surreptitiously, I nodded.

"Yes. Naturally I came at once. Have you any theory as to the cause of Mr. Hart's relapse?"

Brittlestone seemed nonplussed for a moment. He studied me sharply.

"I must confess, no," he returned slowly. "However, I think collapse would be the better word. Mr. Hart seems to be suffering from an excessive lassitude. Of course, I suspected immediately that he had had an acute attack of indigestion, and later I feared he might have developed some malignant disease. But I have given him a thorough examination, and can say that he is perfectly sound. So I am forced to believe that he is suffering from over-exertion. He did rather overdo it, too, doctor. Against my advice, you may be sure. The first day he rose from bed, he took a tramp of many miles. I am in error, of course, in having allowed him to over-ride me. But," Brittlestone smiled deprecatively, "he is a rather difficult man to oppose. Come, and I will take you to him."

Apparently perfectly friendly, Brittlestone chatted away as he led me down the wide, white hall. I gained the decided impression that he was neither puzzled nor alarmed over Hart, that he regarded his ailment as

merely fatigue. He was more interested in describing the sanatorium, which he promised to show to me as soon as I had seen Hart. Before the open door of a right wing room, he paused.

"He is in here, doctor."

I entered first, and as I crossed the threshold, I knew. Hart lay on his back, his face in repose, his eyes closed. There was a weariness to his face that was already slowly fading. I had been in the presence of death too often not to sense it. Brittlestone seemed to realize it, too. There was surprise and alarm on his features. I crossed to the bed, and took up Hart's hand. There was no indication of pulse in his wrist, and the flesh was cold

"What—what—" began Brittlestone in an excited voice. "Is he—"

"He is dead," I returned, facing him with an indignation that was perhaps not justified. "Where is Mr. Brand?"

"Why—" Brittlestone stepped to the bedside, and seized the dead man's hand. Then he let it fall. "Why, he must be around. I'll find him."

He left the room hurriedly. His odd behavior and great agitation struck me as exceedingly strange, and more in keeping with the reaction of a close relative than with a physician. He returned shortly with John Brand, Hart's secretary-lawyer. In the meantime I had examined the dead man carefully, and found no clue as to the cause of his death. As Brittlestone and Brand entered, I was examining the left arm of the corpse. I had found it dotted with the marks of a hypodermic needle. With a brief nod to Brand, I pointed these out to Brittlestone.

"Was morphine administered to the patient with your sanction, doctor?"

"Why, yes," returned Brittlestone hastily. "He was in frequent pain during the last week. He was utterly unable to sleep at night. I was forced to give him a quieting dose."

"I was not aware of that," I said, gazing sternly at the physician. "Nor did you mention it to me, doctor. What was the cause of this pain?"

BRITTLESTONE licked his lips nervously.

"I had failed to mention it because I thought you understood Mr. Hart's condition thoroughly. He was subject to violent headaches, a symptom of his frequent attacks of acute indigestion."

I gazed thoughtfully at Brittlestone, and he avoided my glance. I realized, of course, that he had lied. It was a clumsy lie, too, evidently spun on the spur of the moment. But I could see no reason for his falsehood.

"You say he was in pain?" I returned. "That you thought he was suffering from headache? Did you make no attempt to determine what was wrong? Do you administer drugs here merely upon request? There are a dozen hypodermic marks upon his arm. Had he not died as he did, you were in a fair way to make an addict of him, for you admit that you administered the drug only this last week."

"A dozen?" Brittlestone, evidently surprised, stepped forward, and examined the dead man's arm. "I administered it to him but three times."

"The nurse?" I asked. "Where is she?"

"Why," Brittlestone hesitated. "She left yesterday. That is, the one who has been in attendance the last month. I granted her a two months' vacation. The new one—she is around somewhere. Shall I call her?"

"No. She would be of no aid," I replied.

That there was something seriously wrong was evident. But each moment I became more puzzled. Brittlestone's attitude was certainly suspicious, and I began to suspect him of criminal activity, and even murder. It left me stunned for a moment, the possibility that Hart had been murdered. I dismissed the idea immediately. For if it was murder, what motive could there be? A physician does not kill his patients. Yet Hart's death had been suspiciously sudden, and his illness suspiciously unnatural. And Brittlestone said he had suffered intense pain, while in his letter to me he had described himself as only terribly fatigued. Another strange circumstance was the absence of any one in attendance on Hart.

As to the hypodermic marks, there was no evidence of death from morphine, nor indeed from any drug. Neither was death from any known disease indicated. Brittlestone's confusion concerning the hypodermic marks was suspicious. Also, thought I, he had lied about them. But his astonishment and dismay when we had found Hart dead had seemed genuine.

I was in an absolute quandary. The thought came that it might be suicide. Perhaps Brittlestone had told the truth, and Hart had simulated pain in order to gain the drug. But he had not died from morphine. And there were nine more marks on the arm than Brittlestone admitted. Perhaps Hart had bribed the nurse for the additional doses. Still, what was it that had killed him? I could think, at the moment, only that he might have committed suicide by injecting an air bubble into his blood stream, though this, of course, did not explain his lassitude. I faced my companions.

"Mr. Hart seems to have succumbed to an excessive fatigue caused by over-exertion," I declared. "But these extra ministrations of a drug of some kind raises a doubt that will justify an inquest. Will you kindly notify the coroner, doctor?"

Brittlestone's eyes flickered oddly.

"Certainly," he replied, and there was an eagerness to his tone. "I dislike, of course, having any question raised that will reflect on Happy Lane, but in this case I feel that it is necessary. I am sure that Mr. Hart must have bribed his nurse for added amounts of morphine, but it is evident that this did not cause his death. An inquest will establish that he died from natural causes."

With this formal speech, he left the room. I took advantage of his absence to question Hart's lawyer-secretary. Brand informed me that he had been with his employer constantly during the daytime, though he slept several rooms away

"Were Mr. Hart's affairs in good shape?" I asked. "Did he have any troubles, financial or otherwise, that you know of? Any serious enough to have preyed on his mind?"

"No indeed, doctor. In fact, he was more free of entanglements than he had been at any time I handled

his affairs. There was not even a lawsuit pending against him."

"You had noticed no change in him mentally?"

"No—well, he did one thing I, personally, thought odd."

"And that?"

"Well, two weeks ago he drew a will leaving half of his estate to this sanatorium. But it was because of his gratitude at having recovered his health here. That was before his relapse, you know. He told me that Dr. Brittlestone was working wonders both with his sanatorium work, and in research. You know the doctor has a laboratory here, and he spends most of his spare time in it."

I WAS too overwhelmed for speech. Without a word to Brand, I stepped into the long hallway of the sanatorium, and walked slowly down it. I realized that Hart had been the victim of an infernally clever scoundrel, that this Brittlestone was as dangerous a man as had ever walked the earth. He had made Hart die a "natural death," a death due to some mysterious substance—some poison utterly unknown. I thought of Brittlestone's laboratory. I walked to Room 105. The door was unlocked. Quickly entering, I found myself in a well-appointed laboratory, replete with apparatus for physiological research. As I stood there, inspecting the room, fearful of Brittlestone's coming, I heard a sound. It was the faint footsteps of someone, methodical, weary, unvarying. It came from the left of me, evidently in the room next. I listened for several moments. The person in that room was stepping with a measured tread, never slowing up, never increasing his pace. I noted that there was a door opening into that chamber, and I stepped to it. It was locked, with the key in the lock. I drew back the bolt, and cautiously opened the door. Then I stared in amazement. A man, lagging of step, was circling the room. His hands were manacled behind him. He was apparently worn out, and now and again he sighed in agony. His head was drooping, his face lined with fatigue. Often he half stumbled as though about to fall. I saw that he was held up by a harness that was strapped to his shoulders, and that this harness was fastened to a motor on a high track on the wall. Evidently operated by electricity, the car made an endless round of the chamber. The man, pulled onward by it, was forced to walk continuously.

I leaped forward, and removed the straps from his shoulders. With a moan, he collapsed into my arms. The bolt continued to traverse the room, dragging the harness after it.

There came a sound from the doorway. Glancing up, I saw the huge form of Brittlestone, and farther back, Brand. Without a word, Brittlestone stepped back, slammed the door, and locked it. I heard a mumble of voices, a scuffling sound, and the crash of glass. A moment later the door opened again. Brand came in, holding a revolver. His face was red, and he was breathing heavily.

"What's all this, doctor?" he panted. "Dr. Brittlestone acted like a madman. He tried to shoot me. I had a time getting the gun. Then he jumped through the window. I guess he's killed. He's lying out there on the cement."

Brittlestone, we found, was dead, his skull fractured. In his laboratory we found memoranda that fully cleared up the mystery of Hart's death. Hart had indeed died from fatigue.

Brittlestone had made discoveries in physiology that would have been much to his credit had he not turned them to the nefarious end he did. He had long studied the katabolism of muscular activity, and had succeeded in preparing a serum containing muscle fatigue stuffs, or rather, I gathered from his notes, the actual poisonous principle that induces fatigue. Among his memoranda were several pages torn from a work by Angelo Moss, the Italian physiologist. Certain passages, which were marked, I shall quote:

"I have now given a rapid glance at the toxic substances which are produced in the organism." "If these waste products accumulate in the blood, we feel fatigued; when their amount passes the physiological limit, we become ill." "* * * and so long ago as 1887 I found that the blood of a fatigued animal is toxic, for if injected into another animal, it produces the phenomena characteristic of fatigue." "* * * The idea that fatigue is a kind of poisoning resulting from products derived from chemical changes in the cells is not new. The physiologists, Pfluger, Preyer, and Zuntz especially did much to establish the basis for this opinion. But we are still at the beginning of our researches, and can say nothing as to the nature of these substances, and the question is so complex and so controversial that I shall certainly not attempt to indicate our present position with regard to it."

The man I had found a prisoner was one of the charity patients and from him Brittlestone had gained the supply of blood for his experiments. He had kept the man eternally walking, allowing him no rest more than was necessary to keep him alive. Recently Brittlestone had gone farther than the isolation of his poison from the blood of the wearied man. He had learned to synthesize the poison from organic substances.

Money mad, Brittlestone had made a business of playing upon the gratitude of his wealthy patients, gaining mention in their wills, and then murdering them with his serum. At least five, we learned, had met the same fate as Hart, but in their cases no question had been raised.

Had Brittlestone not killed himself, he would surely have hanged. As it was, three of his staff were convicted as accomplices, and sentenced to life imprisonment.

THE END.

The THOUSAND-AND-SECOND TALE OF SCHEHERAZADE

by Edgar Allan Poe

Author of "The Facts in the Case of M. Valdemar," etc.

Truth is stranger than fiction.—*Old Saying.*

HAVING had occasion, lately, in the course of some Oriental investigation, to consult the *Tellmenow Isitsoornot*, a work which (like the Zohar of Simeon Jochaides) is scarcely known at all, even in Europe, and which has never been quoted, to my knowledge, by any American—if we except, perhaps, the author of the "Curiosities of American Literature"; having had occasion, I say, to turn over some pages of the first-mentioned very remarkable work, I was not a little astonished to discover that the literary world has hitherto been strangely in error respecting the fate of the vizier's daughter, Scheherazade, as that fate is depicted in the "Arabian Nights"; and that the *dénouement* there given, if not altogether inaccurate, as far as it goes, is at least to blame in not having gone very much farther.

For full information on this interesting topic, I must refer the inquisitive reader to the "Isitsoornot" itself; but, in the mean time, I shall be pardoned for giving a summary of what I there discovered.

It will be remembered that, in the usual version of the tales, a certain monarch, having good cause to be jealous of his queen, not only puts her to death, but makes a vow, by his beard and the prophet, to espouse each night the most beautiful maiden in his dominions, and the next morning to deliver her up to the executioner.

Having fulfilled this vow for many years to the letter, and with a religious punctuality and method that conferred great credit upon him as a man of devout feelings and excellent sense, he was interrupted one afternoon (no doubt at his prayers) by a visit from his grand vizier, to whose daughter, it appears, there had occurred an idea.

Her name was Scheherazade, and her idea was, that she would either redeem the land from the depopulating tax upon its beauty, or perish, after the approved fashion of all heroines, in the attempt.

Accordingly, and although we do not find it to be leap-year (which makes the sacrifice more meritorious), she deputes her father, the grand vizier, to make an offer to the king of her hand. This hand the king eagerly accepts—he had intended to take it at all events, and had put off the matter from day to day, only through fear of the vizier—but, in accepting it now, he gives all parties very distinctly to understand that, grand vizier or no grand vizier, he has not the slightest design of giving up one iota of his vow or of his privileges. When, therefore, the fair Scheherazade insisted upon marrying the king, and did actually marry him despite her father's excellent advice not to do anything of the kind when she would and did marry him, I say, will I nill I, it was with her beautiful black eyes as thoroughly open as the nature of the case would allow.

It seems, however, that this politic damsel (who had been reading Machiavelli, beyond doubt) had a very ingenious little plot in her mind. On the night of the wedding, she contrived, upon I forget what specious pretense, to have her sister occupy a couch sufficiently near that of the royal pair to admit of easy conversation from bed to bed; and, a little before cock-crowing, she took care to awaken the good monarch, her husband (who bore her none the worse will because he intended to wring her neck on the morrow)—she managed to awaken him, I say although, on account of a capital conscience and an easy digestion, he slept well, by the profound interest of a story (about a rat and a black cat, I think) which she was narrating (all in an undertone, of course) to her sister. When the day broke, it so happened that this history was not altogether finished, and that Scheherazade, in the nature of things could not finish it just then, since it was high time for her to get up and be bowstrung—a thing very little more pleasant than hanging, only a trifle more genteel!

The king's curiosity, however, prevailing, I am sorry to say, even over his sound religious principles, induced him for this once to postpone the fulfillment of his vow until next morning, for the purpose and with the hope of hearing that night how it fared in the end with the black cat (a black cat, I think it was) and the rat. His curiosity was that much aroused

The night having arrived, however, the lady Scheherazade not only put the finishing stroke to the black cat and the rat (the rat was blue), but before she well knew what she was about, found herself deep in the intricacies of a narration, having reference (if I am not altogether mistaken) to a pink horse (with green wings) that went, in a violent manner, by clockwork, and was wound up with an indigo key. With this history the king was even more profoundly interested

WHEN we realize that this story was written nearly 100 years ago, we must marvel at the extraordinary fertile imagination of Poe. Poe was probably the inventor of "Scientifiction" as we know it today, and just because the story was written almost a century ago, certainly does not make it less valuable. On the contrary, it becomes more valuable as time passes. It is just as applicable to the modern man, who is mostly in the fog about what goes on around him in science today, as his predecessors were a century ago.

Scheherazade relates the thousand-and-second tale to the caliph—being the astounding adventures of Sinbad on the "fierce monster of the sea," going to strange lands—thus relieving, temporarily, at least, the tax on the female beauty of her land.

than with the other—and, as the day broke before its conclusion (notwithstanding all the queen's endeavors to get through with it in time for the bowstringing), there was again no resource but to postpone that ceremony as before, for twenty-four hours. The next night there happened a similar accident with a similar result, and then the next—and then again the next; so that, in the end, the good monarch, having been unavoidably deprived of all opportunity to keep his vow during a period of no less than one thousand and one nights, either forgets it altogether by the expiration of this time, or gets himself absolved of it in the regular way, or (what is more probable) breaks it outright, as well as the head of his father confessor. At all events, Scheherazade, who, being lineally descended from Eve, fell heir, perhaps, to the whole seven baskets of talk, which the latter lady, we all know, picked up from under the trees in the garden of Eden; Scheherazade, I say, finally triumphed, and the tariff upon beauty was repealed.

Now, this conclusion (which is that of the story as we have it upon record) is, no doubt, excessively proper and pleasant—but alas! like a great many pleasant things, is more pleasant than true; and I am indebted altogether to the "Isitsöornot" for the means of correcting the error. *"Le Mieux,"* says a French proverb, *"est l'ennemi du bien,"* and, in mentioning that Scheherazade had inherited the seven baskets of talk, I should have added, that she put them out at compound interest until they amounted to seventy-seven.

"My dear sister," said she, on the thousand-and-second night (I quote the language of the "Isitsoornot" at this point, *verbatim*), "my dear sister," said she, "now that all this little difficulty about the bowstring has blown over, and that this odious tax is so happily repealed, I feel that I have been guilty of great indiscretion in withholding from you and the king (who, I am sorry to say, snores—a thing no gentleman would do) the full conclusion of the history of Sinbad the sailor. This person went through numerous other and more interesting adventures than those which I related; but the truth is, I felt sleepy on the particular night of their narration, and so was seduced into cutting them short—a grievous piece of misconduct, for which I only trust that Allah will forgive me. But even yet it is not too late to remedy my great neglect—and as soon as I have given the king a pinch or two in order to wake him up so far that he may stop making that horrible noise, I will forthwith entertain you (and him if he pleases) with the sequel of this very remarkable story."

HEREUPON the sister of Scheherazade, as I have it from the "Isitsöornot," expressed no very particular intensity of gratification, but the king having been sufficiently pinched, at length ceased snoring, and finally said "Hum!" and then "Hoo!" when the queen, understanding these words (which are no doubt Arabic) to signify that he was all attention, and would do his best not to snore any more—the queen I say, having arranged these matters to her satisfaction, re-entered thus, at once, into the history of Sinbad the sailor:

"'At length, in my old age' (these are the words of Sinbad himself, as retailed by Scheherazade)—"'at length in my old age, and after enjoying many years of tranquility at home, I became once more possessed with a desire of visiting foreign countries; and one day, without acquainting any of my family with my design, I packed up some bundles of such merchandise as was most precious and least bulky, and, engaging a porter to carry them, went with him down to the sea-shore, to await the arrival of any chance vessel that might convey me out of the kingdom into some region which I had not as yet explored.

"'Having deposited the packages upon the sands, we sat down beneath some trees, and looked out into the ocean in the hope of perceiving a ship, but during several hours we saw none whatever. At length I fancied that I could hear a singular buzzing or humming sound—and the porter, after listening awhile, declared that he also could distinguish it. Presently it grew louder, and then still louder, so that we could have no doubt that the object which caused it was approaching us. At length, on the edge of the horizon, we discovered a black spot, which rapidly increased in size until we made it out to be a vast monster, swimming with a great part of its body above the surface of the sea. It came toward us with inconceivable swiftness, throwing up huge waves of foam around its breast, and illuminating all that part of the sea through which it passed with a long line of fire that extended far off into the distance.

"'As the thing drew near we saw it very distinctly. Its length was equal to that of three of the loftiest trees that grow, and it was as wide as the great hall of audience in your palace, O most sublime and munificent of the caliphs. Its body, which was unlike that of ordinary fishes, was as solid as a rock, and of a jetty blackness throughout all that portion of it which floated above the water, with the exception of a narrow blood-red streak that completely begirdled it. The belly, which floated beneath the surface, and of which we could get only a glimpse now and then as the monster rose and fell with the billows, was entirely covered with metallic scales, of a color like that of the moon in misty weather. The back was flat and nearly white, and from it there extended upward of six spines, about half the length of the whole body.

"'This horrible creature had no mouth that we could perceive; but, as if to make up for this deficiency, it was provided with at least four score of eyes, that protruded from their sockets like those of the green dragon-fly, and were arranged all around the body in two rows, one above the other, and parallel to the blood-red streak, which seemed to answer the purpose of an eyebrow. Two or three of these dreadful eyes were much larger than the others and had the appearance of solid gold.

"'Although this beast approached us, as I have before said, with the greatest rapidity, it must have been moved altogether by necromancy—for it had neither fins like a fish nor web-feet like a duck, nor wings like the sea-shell which is blown along in the manner of a vessel; nor yet did it writhe itself forward as do the eels. Its head and its tail were shaped precisely alike only, not far from the latter, were two

small holes that served for nostrils, and through which the monster puffed out its thick breath with prodigious violence, and with a shrieking, disagreeable noise.

"'Our terror at beholding this hideous thing was very great—but it was even surpassed by our astonishment, when upon getting a nearer look, we perceived upon the creature's back a vast number of animals about the size and shape of men, and altogether much resembling them, except that they wore no garments (as men do), being supplied (by nature, no doubt) with an ugly, uncomfortable covering, a good deal like cloth, but fitting so tight to the skin as to render the poor wretches laughably awkward, and put them apparently to severe pain. On the very tips of their heads were certain square-looking boxes, which, at first sight, I thought might have been intended to answer as turbans, but I soon discovered that they were excessively heavy and solid, and I therefore concluded they were contrivances designed, by their great weight, to keep the heads of the animals steady and safe upon their shoulders. Around the necks of the creatures were fastened black collars (badges of servitude, no doubt), such as we keep on our dogs, only much wider and infinitely stiffer—so that it was quite impossible for these poor victims to move their heads in any direction without moving the body at the same time; and thus they were doomed to perpetual contemplation of their noses—a view puggish and snubby in a wonderful, if not positively in an awful degree.

"'When the monster had nearly reached the shore where we stood, it suddenly pushed out one of its eyes to a great extent, and emitted from it a terrible flash of fire, accompanied by a dense cloud of smoke, and a noise that I can compare to nothing but thunder. As the smoke cleared away, we saw one of the odd man-animals standing near the head of the large beast with a trumpet in his hand, through which (putting it to his mouth) he presently addressed us in loud, harsh, and disagreeable accents, that, perhaps, we should have mistaken for language, had they not come altogether through the nose.

"'Being thus evidently spoken to, I was at a loss how to reply, as I could in no manner understand what was said; and in this difficulty I turned to the porter, who was near swooning through affright, and demanded of him his opinion as to what species of monster it was, what it wanted, and what kind of creatures those were that so swarmed upon its back. To this the porter replied, as well as he could for trepidation, that he had once before heard of this sea-beast; that it was a cruel demon, with bowels of sulphur and blood of fire, created by evil genii as the means of inflicting misery upon mankind; that the things upon its back were vermin, such as sometimes infest cats and dogs, only a little larger and more savage; and that these vermin had their uses, however evil—for, through the torture they caused the beast by their nibblings and stingings, it was goaded into that degree of wrath which was requisite to make it roar and commit ill, and so fulfill the vengeful and malicious designs of the wicked genii

"'This account determined me to take to my heels, and, without once even looking behind me, I ran at full speed up into the hills, while the porter ran equally fast, although nearly in an opposite direction, so that, by these means, he finally made his escape with my bundles, of which I have no doubt he took excellent care—although this is a point I cannot determine, as I do not remember that I ever beheld him again.

"'For myself, I was so hotly pursued by a swarm of the men-vermin (who had come to the shore in boats) that I was very soon overtaken, bound hand and foot, and conveyed to the beast, which immediately swam out again into the middle of the sea.

"'I now bitterly repented my folly in quitting a comfortable home to peril my life in such adventures as this; but regret being useless, I made the best of my condition, and exerted myself to secure the good-will of the man-animal that owned the trumpet, and who appeared to exercise authority over his fellows. I succeeded so well in this endeavor that in a few days the creature bestowed upon me various tokens of its favor, and in the end even went to the trouble of teaching me the rudiments of what it was vain enough to denominate its language; so that, at length, I was enabled to converse with it readily, and came to make it comprehend the ardent desire I had of seeing the world.

"'*Washish squashish squeak, Sinbad, hey-diddle, diddle, grunt unt grumble, hiss fiss, whiss,*' said he to me, one day after dinner—but I beg a thousand pardons, I had forgotten that your majesty is not conversant with the dialect of the Cock-neighs (so the man-animals were called; I presume because their language formed the connecting link between that of the horse and that of the rooster). With your permission, I will translate. '*Washish squashish,*' and so forth:—that is to say, 'I am happy to find, my dear Sinbad, that you are really a very excellent fellow; we are now about doing a thing which is called circumnavigating the globe; and since you are so desirous of seeing the world, I will strain a point and give you a free passage upon the back of the beast.'"

When the Lady Scheherazade had proceeded thus far, relates the "Isitsöornot," the king turned over from his left side to his right and said—

"It is, in fact, *very* surprising, my dear queen, that you omitted hitherto these latter adventures of Sinbad. Do you know I think them exceedingly entertaining and strange?"

The king having thus expressed himself, we are told, the fair Scheherazade resumed her history in the following words:—

"Sinbad went on in this manner, with his narrative—'I thanked the man-animal for its kindness, and soon found myself very much at home on the beast, which swam at a prodigious rate through the ocean; although the surface of the latter is, in that part of the world, by no means flat, but round like a pomegranate, so that we went—so to say—either up hill or down hill all the time.'"

"That, I think, was very singular," interrupted the king.

"Nevertheless, it is quite true," replied Scheherazade.

"I have my doubts," rejoined the king; "but pray, be so good as to go on with the story."

"I will," said the queen. "'The beast,' continued Sinbad, 'swam, as I have related, up hill and down hill,

until at length we arrived at an island, many hundreds of miles in circumference, but which, nevertheless, had been built in the middle of the sea by a colony of little things like caterpillars.' [1]

"Hum!" said the king.

"'Leaving this island,' said Sinbad—(for Scheherazade, it must be understood, took no notice of her husband's ill-mannered ejaculation)—'leaving this island, we came to another where the forests were of solid stone, and so hard that they shivered to pieces the finest-tempered axes with which we endeavored to cut them down.'" [2]

"Hum!" said the king again; but Scheherazade, paying him no attention, continued in the language of Sinbad.

"'Passing beyond this last island, we reached a country where there was a cave that ran to the distance of thirty or forty miles within the bowels of the earth, and that contained a greater number of far more spacious and more magnificent palaces than are to be found in all Damascus and Bagdad. From the rooms of these palaces there hung myriads of gems, like diamonds, but larger than men; and in among the streets of towers and pyramids and temples, there flowed immense rivers as black as ebony, and swarming with fish that had no eyes." [3]

"Hum!" said the king.

"We then swam into a region of the sea where we found a lofty mountain, down whose sides there streamed torrents of melted metal, some of which were twelve miles wide and sixty miles long; [4] while from an abyss on the summit issued so vast a quantity of ashes that the sun was entirely blotted out from the heavens, and it became darker than the darkest midnight; so that when we were even at the distance of a hundred and fifty miles from the mountain, it was impossible to see the whitest object, however close we held it to our eyes.'" [5]

"Hum!" said the king.

"'After quitting this coast, the beast continued his voyage until we met with a land in which the nature of things seemed reversed—for we here saw a great lake, at the bottom of which, more than a hundred feet beneath the surface of the water, there flourished in full leaf a forest of tall and luxuriant trees.'" [6]

"Hoo!" said the king.

"'Some hundred miles farther on brought us to a climate where the atmosphere was so dense as to sustain iron or steel, just as our own does feathers.'" [7]

"Fiddle de dee," said the king.

"PROCEEDING still in the same direction, we presently arrived at the most magnificent regions in the whole world. Through it there meandered a glorious river for several thousands of miles. This river was of unspeakable depth, and of a transparency richer than that of amber. It was from three to six miles in width; and its banks, which rose on either side to twelve hundred feet in perpendicular height, were crowned with ever-blossoming trees and perpetual sweet-scented flowers that made the whole territory one gorgeous garden; but the name of this luxuriant land was the kingdom of Horror, and to enter it was inevitable death.'" [8]

"Humph!" [9] said the king.

"'We left this kingdom in great haste, and, after some days, came to another, where we were astonished to perceive myriads of monstrous animals with horns resembling scythes upon their heads. These hideous beasts dig for themselves vast caverns in the soil, of a funnel shape, and line the sides of them with rocks so disposed one upon the other that they fall instantly when trodden upon by other animals, thus precipitating them into the monster's dens, where their blood is immediately sucked and their carcasses afterwards hurled

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[1] The coralites.

[2] "One of the most remarkable natural curiosities in Texas is a petrified forest near the head of Pasigno River. It consists of several hundred trees, in an erect position, all turned to stone. Several trees, now growing, are partly petrified. This is a startling fact for natural philosophers, and must cause them to modify the existing theory of petrifaction."—*Kennedy.*

This account, at first discredited, has since been corroborated by the discovery of a completely petrified forest, near the headwaters of the Chayenne, or Chienne River, which has its source in the Black Hills of the Rocky Chain.

There is scarcely, perhaps, a spectacle on the surface of the globe more remarkable, either in a geological or picturesque point of view, than that presented by the petrified forest, near Cairo. The traveler, having passed the tombs of the caliphs, just beyond the gates of the city, proceeds to the southward, nearly at right angles to the road across the desert to Suez, and after having traveled some ten miles up a low barren valley, covered with sand, gravel, and sea-shells, fresh as if the tide had retired but yesterday, crosses a low range of sandhills, which has for some distance run parallel to his path. The scene now presented to him is beyond conception, singular and desolate. A mass of fragments of trees, all converted into stone, and when struck by his horse's hoof ringing like cast iron, is seen to extend itself for miles and miles around him, in the form of a decayed and prostrate forest. The wood is of a dark brown hue, but retains its form in perfection, the pieces being from one to fifteen feet in length, and from half a foot to three feet in thickness, strewed so closely together, as far as the eye can reach, that an Egyptian donkey can scarcely thread its way through amongst them, and so natural that, were it in Scotland or Ireland, it might pass without remark for some enormous drained bog, on which the exhumed trees lay rotting in the sun. The roots and rudiments of the branches are in many cases nearly perfect, and in some the worm-holes eaten under the bark are readily recognizable. The most delicate of the sap vessels, and all the finer portions of the centre of the wood, are perfectly entire, and bear to be examined with the strongest magnifiers. The whole are so thoroughly silicified as to scratch glass, and are capable of receiving the highest polish.—*Asiatic Magazine.*

[3] The Mammoth Cave of Kentucky.

[4] In Iceland, 1783

[5] "During the eruption of Hecla, in 1766, clouds of this kind produced such a degree of darkness that, at Glaumba, which is more than fifty leagues from the mountain, people could only find their way by groping. During the eruption of Vesuvius, in 1794, at Caserta, four leagues distant, people could only walk by the light of torches. On May 1, 1812, a cloud of volcanic ashes and sand, coming from a volcano in the island of St. Vincent, covered the whole of Barbadoes, spreading over it so intense a darkness that at mid-day, in the open air, one could not perceive the trees or other objects near him, or even a white handkerchief placed at the distance of six inches from the eye."—*Murray*, p. 215, Phil. edit.

[6] "In the year 1790, in the Caraccas, during an earthquake, a portion of the granite soil sank and left a lake eight hundred yards in diameter, and from eighty to a hundred feet deep. It was a part of the forest of Aripao which sank and the trees remained green for several months under the water."—*Murray*, p. 221.

[7] The hardest steel ever manufactured may, under the action of a blow-pipe, be reduced to an impalpable powder, which will float readily in the atmospheric air.

[8] The region of the Nigar. See *Simmons's* Colonial Magazine.

contemptuously out to an immense distance from "the caverns of death." [9]

"Pooh!" said the king.

"'Continuing our progress, we perceived a district abounding with vegetables that grew not upon any soil, but in the air.[10] There were others that sprang from the substance of other vegetables; [11] others that derived their substance from the bodies of living animals; [12] and then again there were others that glowed all over with intense fire; [13] others that moved from place to place at pleasure,[14] and, what is still more wonderful, we discovered flowers that lived and breathed and moved their limbs at will, and had, moreover, the detestable passion of mankind for enslaving other creatures and confining them in horrid and solitary prisons until the fulfilment of appointed tasks.'" [15]

"Pshaw!" said the king.

"'Quitting this land, we soon arrived at another in which the bees and the birds are mathematicians of such genius and erudition, that they give daily instructions in the science of geometry to the wise men of the empire. The king of the place having offered a reward for the solution of two very difficult problems, they were solved upon the spot—the one by the bees, and the other by the birds; but the king keeping their solution a secret, it was only after the most profound researches and labor, and the writing of an infinity of big books, during a long series of years, that the men-mathematicians at length arrived at the identical solutions which had been given upon the spot by the bees and by the birds.'" [16]

"Oh my!" said the king.

"'We had scarcely lost sight of this empire when we found ourselves close upon another, from whose shores there flew over our heads a flock of fowls a mile in breadth, and two hundred and forty miles long; so that, although they flew a mile during every minute, it required no less than four hours for the whole flock to pass over us—in which there were several millions of millions of fowls.'" [17]

"Oh fy!" said the king.

"'No sooner had we got rid of these birds, which occasioned us great annoyance, than we were terrified by the appearance of a fowl of another kind, and infinitely larger than even the rocs which I met in my former voyages; for it was bigger than the biggest of the domes on your seraglio, oh, most Munificent of Caliphs. This terrible fowl had no head that we could perceive, but was fashioned entirely of belly, which was of a prodigious fatness and roundness, of a soft-looking substance, smooth, shining, and striped with various colors. In its talons, the monster was bearing away to his eyrie in the heavens, a house from which it had knocked off the roof, and in the interior of which we distinctly saw human beings, who, beyond doubt, were in a state of frightful despair at the horrible fate which awaited them. We shouted with all our might, in the hope of frightening the bird into letting go of its prey; but it merely gave a snort or puff, as if of rage, and then let fall upon our heads a heavy sack which proved to be filled with sand!'" [18]

"Stuff!" said the king.

"'It was just after this adventure that we encountered a continent of immense extent and of prodigious solidity, but which, nevertheless was supported entirely upon the back of a sky-blue cow that had no fewer than four hundred horns.'" [19]

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[9] The *Hyrmeleon*—lion-ant. The term "monster" is equally applicable to small abnormal things and to great, while such epithets as "vast" are merely comparative. The cavern of the myrmeleon is *vast* in comparison with the hole of the common red ant. A grain of silex is, also, a "rock."

[10] The *Epidendron, Flos Aeris*, of the family of the *Orchidoe*, grows with merely the surface of its roots attached to a tree or other object, from which it derives no nutriment—subsisting altogether upon air.

[11] The *Parasite*, such as the wonderful *Rafflesia Arnaldii*.

[12] *Schouw* advocates a class of plants that grow upon living animals—the *Plantae Epizoae*. Of this class are the *Fuci* and *Algoe*.

Mr. J. B. Williams, of Salem, Mass., presented the National Institute with an insect from New Zealand, with the following description: "*The Hotte*, a decided caterpillar or worm, is found growing at the foot of the *Rata* tree, with a plant growing out of its head. This most peculiar and extraordinary insect travels up both the *Rata* and *Perriri* trees, and entering into the top, eats its way, perforating the trunk of the tree until it reaches the root; it then comes out of the root and dies, or remains dormant, and the plant propagates out of its head; the body remains perfect and entire, of a harder substance than when alive. From this insect the natives make a coloring for tattooing."

[13] In mines and natural caves we find a species of cryptogamous *fungus* that emits an intense phosphorescence.

[14] The orchis, scabius, and valisneria.

[15] "The corolla of this flower (*Aristolochia Clematitis*), which is tubular, but terminating upward in a ligulate limb, is inflated into a globular figure at the base. The tubular part is internally beset with stiff hairs, pointing downward. The globular part contains the pistil, which consists merely of a germen and stigma, together with the surrounding stamens. But the stamens, being shorter than even the germen, cannot discharge the pollen so as to throw it upon the stigma, as the flower stands always upright till after impregnation. And hence, without some additional and peculiar aid, the pollen must necessarily fall down to the bottom of the flower. Now, the aid that nature has furnished in this case is, that of the *Tipula Pennicornis*, a small insect, which, entering the tube of the corolla in quest of honey, descends to the bottom and rummages about till it becomes quite covered with pollen; but not being able to force its way out again, owing to the downward position of the hairs, which converge to a point like the wires of a mouse-trap, and being somewhat impatient of its confinement, it brushes backward and forward, trying every corner, till, after repeatedly traversing the stigma, it covers it with pollen sufficient for its impregnation, in consequence of which the flower soon begins to droop and the hairs to shrink to the side of the tube, affecting an easy passage for the escape of the insect."—*Rev. P. Keith*, System of Physiological Botany.

[16] The bees—ever since bees were—have been constructing their cells with just such sides, in just such number, and at just such inclinations, as it has been demonstrated (in a problem involving the profoundest mathematical principles) are the very sides, in the very number, and at the very angles, which will afford the creatures the most room that is compatible with the greatest stability of structure.

During the latter part of the last century, the question arose among mathematicians—"to determine the best form that can be given to the sails of a windmill, according to their varying distances from the revolving vanes, and likewise from the centres of the revolution." This is an excessively complex problem, for it is, in other words, to find the best possible position at an infinity of varied distances, and at an infinity of points on the arm. There were a thousand futile attempts to answer the query on the part of the most illustrious mathematicians; and, when, at length, an undeniable solution was discovered, men found that the wings of a bird had given it with absolute precision ever since the first bird had traversed the air.

[17] He observed a flock of pigeons passing betwixt Frankfort and the Indiana territory, one mile at least in breadth; it took up four hours in passing; which, at the rate of one mile per minute, gives a length of 240 miles; and, supposing three pigeons to each square yard, gives 2,230,372,900 pigeons.—Travels in Canada and the United States, by *Lieut. F. Hall.*

[18] A balloon.

[19] "The earth is upheld by a cow of a blue color having horns four hundred in number."—*Sale's* Koran.

"*That*, now I believe," said the king, "because I have read something of the kind before in a book."

"'We passed immediately beneath this continent (swimming in between the legs of the cow) and, after some hours, found ourselves in a wonderful country indeed, which, I was informed by the man-animal, was his own native land, inhabited by things of his own species. This elevated the man-animal very much in my esteem; and in fact, I now began to feel ashamed of the contemptuous familiarity with which I had treated him; for I found that the man-animals in general were a nation of the most powerful magicians, who lived with worms in their brain,[20] which, no doubt, served to stimulate them, by their painful writhings and wrigglings, to the most miraculous efforts of imagination.'"

"Nonsense!" said the king.

"Among the magicians were domesticated several animals of very singular kinds; for example, there was a huge horse whose bones were iron and whose blood was boiling water. In place of corn, he had black stones for his usual food; and yet, in spite of so hard a diet, he was so strong and swift that he would drag a load more weighty than the grandest temple in this city, at a rate surpassing that of the flight of most birds.'"[21]

"Twattle!" said the king.

"'I saw, also, among these people a hen without feathers, but bigger than a camel; instead of flesh and bone she had iron and brick; her blood, like that of the horse (to whom, in fact, she was nearly related), was boiling water; and like him she ate nothing but wood or black stones. This hen brought forth, very frequently, a hundred chickens in the day; and, after birth, they took up their residence for several weeks within the stomach of their mother.'"[22]

"Fal lal!" said the king.

"'One of this nation of mighty conjurors created a man out of brass and wood, and leather, and endowed him with such ingenuity that he would have beaten at chess all the race of mankind, with the exception of the great Caliph, Haroun Alraschid.[23] Another of these magi constructed (of like material) a creature that put to shame even the genius of him who made it; for so great were its reasoning powers that, in a second, it performed calculations of so vast an extent that they would have required the united labor of fifty thousand fleshy men for a year.[24] But a still more wonderful conjuror fashioned for himself a mighty thing that was neither man nor beast, but which had brains of lead, intermixed with a black matter like pitch, and fingers that it employed with such incredible speed and dexterity that it would have had no trouble in writing out twenty thousand copies of the Koran in an hour; and this was so exquisite a precision, that in all the copies there should not be found one to vary from another by the breadth of the finest hair. This thing was of prodigious strength, so that it erected or overthrew the mightiest empires at a breath; but its powers were exercised equally for evil and for good.'"

"'Ridiculous!" said the king.

"'Among this nation of necromancers there was also one who had in his veins the blood of the salamanders; for he made no scruple of sitting down to smoke his chibouc in a red-hot oven until his dinner was thoroughly roasted upon its floor.[25] Another had the faculty of converting the common metals into gold, without even looking at them during the process.[26] Another had such a delicacy of touch that he made a wire so fine as to be invisible.[27] Another had such quickness of perception that he counted all the separate motions of an elastic body, while it was springing backward and forward at the rate of nine hundred millions of times in a second.'"[28]

"Absurd!" said the king.

"'Another of these magicians, by means of a fluid that nobody ever yet saw, could make the corpses of his friends brandish their arms, kick out their legs, fight, or even get up and dance at his will.[29] Another had cultivated his voice to so great an extent that he could have made himself heard from one end of the earth to the other.[30] Another had so long an arm that he could sit down in Damascus and indite a letter at Bagdad—or, indeed, at any distance whatsoever.[31] Another commanded the lightning to come down to him out of the heavens, and it came at his call; and served him for a plaything when it came. Another took two loud sounds and out of them made a silence. Another constructed a deep darkness out of two brilliant lights.[32] Another made ice in a red-hot furnace.[33] Another directed the

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[20] "The *Entozoa*, or intestinal worms, have repeatedly been observed in the muscles, and in the cerebral substance of men." —See *Wyatt's* Physiology, p. 143.

[21] On the Great Western Railway, between London and Exeter, a speed of 71 miles per hour has been attained. A train weighing 90 tons was whirled from Paddington to Didcot (53 miles), in 51 minutes.

[22] The *Eccalobeion*. (Now called Incubator.)

[23] Maelze's Automaton Chess-player.

[24] Babbage's Calculating Machine.

[25] *Chabert*, and since him, a hundred others.

[26] The Electrotype.

[27] *Wollaston* made of platinum for the field of views in a telescope a wire one eighteen-thousand part of an inch in thickness. It could be seen only by means of the microscope.

[28] Newton demonstrated that the retina, beneath the influence of the violet ray of the spectrum, vibrated 900,000,000 of times in a second.

[29] The Voltaic pile.

[30] The Electro Telegraph transmits intelligence instantaneously —at least so far as regards any distance upon the earth.

[31] The Electro Telegraph Printing Apparatus.

[32] Common experiments in Natural Philosophy. If two red rays from two luminous points be admitted into a dark chamber so as to fall on a white surface, and differ in their length by 0.0000258 of an inch, their intensity is doubled. So also if the difference in length be any whole number multiplied of that fraction. A multiple by 2¼, 3¼, &c., gives an intensity equal to one ray only; but a multiple by 2½, 3½, &c., gives the result of total darkness. In violet rays similar effects arise when the difference in length is 0.000157 of an inch; and with all other rays the results are the same—the difference varying with a uniform increase from the violet to the red.

Analogous experiments in respect to sound produce analogous results.

[33] Place a platinum crucible over a spirit lamp, and keep it at a red heat; pour in some sulphurous acid, which, though the most volatile of bodies at a common temperature, will be found to become completely fixed in a hot crucible, and not a drop evaporates—being surrounded by an atmosphere of its own, it does not, in fact, touch the sides. A few drops of water are now introduced, when the acid immediately coming in contact with the heated sides of the crucible, flies off in sulphurous acid vapor, and so rapid is its progress, that the caloric of the water passes off with it, which falls a lump of ice to the bottom; by taking advantage of the moment before it is allowed to re-melt, it may be turned out a lump of ice from a red-hot vessel.

sun to paint his portrait, and the sun did.[34] Another took this luminary with the moon and the planets, and having first weighed them with scrupulous accuracy, probed into their depths and found out the solidity of the substance of which they are made. But the whole nation is, indeed, of so surprising a necromantic ability, that not even their infants, nor their commonest cats and dogs, have any difficulty in seeing objects that do not exist at all, or that for twenty-millions of years before the birth of the nation itself, had been blotted out from the face of creation.' "[35]

"Preposterous!" said the king.

" 'The wives and daughters of these incomparably great and wise magi," continued Scheherazade, without being in any manner disturbed by these frequent and most ungentlemanly interruptions on the part of her husband—" 'the wives and daughters of these eminent conjurors are everything that is accomplished and refined; and would be everything that is interesting and beautiful, but for an unhappy fatality that besets them, and from which not even the miraculous powers of their husbands and fathers has, hitherto, been adequate to save. Some fatalities come in certain shapes, and some in others—but this of which I speak, has come in the shape of a crochet.' "[36]

"A what?" said the king.

" 'A crochet,' " said Scheherazade. " 'One of the evil genii who are perpetually upon the watch to inflict ill, has put it into the heads of these accomplished ladies that the thing which we describe as personal beauty, consists altogether in the protruberance of the region which lies not very far below the small of the back. Perfection of loveliness, they say, is in the direct ratio of the extent of this hump. Having been long possessed of this idea, and bolsters being cheap in that country, the days have long gone by since it was possible to distinguish a woman from a dromedary—' "

"Stop!" said the king—"I can't stand that, and I won't. You have already given me a dreadful headache with your lies. The day, too, I perceive, is beginning to break. How long have we been married?—my conscience is getting to be troublesome again. And then that dromedary touch—do you take me for a fool? Upon the whole, you might as well get up and be throttled."

These words, as I learn from the Isitsöornot, both grieved and astonished Scheherazade; but, as she knew the king to be a man of scrupulous integrity, and quite unlikely to forfeit his word, she submitted to her fate with good grace. She derived, however, great consolation (during the tightening of the bowstring) from the reflection that much of the history remained still untold, and that the petulance of her brute of a husband had reaped for him a most righteous reward, in depriving him of many inconceivable adventures.

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[34] The Daguerreotype.

[35] Although light travels 183,000 miles in a second, the distances of 61 Cygni (the first star whose distance was ascertained,) is so inconceivably great, that its rays would require more than ten years to reach the earth. For stars beyond this, 20—or even 1,000 years—would be a moderate estimate. Thus, if they had been annihilated 20, or 1,000 years ago, we might still see them to-day, by the light which *started* from their surfaces, 20 or 1,000 years in the past time. That many which we see daily are really extinct, is not impossible—not even improbable.

The elder Herschel maintains that the light of the faintest nebulæ seen through his great telescope, must have taken 3,000,000 years in reaching the earth. Some, made visible by Lord Ross' instrument must, then, have required at least 20,000,000.

[36] The "bustle" of mid-Victorian terminology.—EDITOR.

THE END

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A STORY OF THE DAYS TO COME

by H.G. Wells

What Has Gone Before:

MWRES—for that was the correct spelling for "Morris" (the title had also disappeared) in the distant century of the future about which this story is written—being a fitting descendant of a very proper and sensible ancestor, did everything just and proper—according to his time, of course. He learned all he needed to learn by means of the phonograph and continued to get his daily news, etc., by the same method. The last vestige of romance had been almost completely eliminated. Everything went on in a perfectly ordered routine; everybody was happy. In those days hypnotists were doing much work.

Elizabeth, Mwres' daughter, was of a decidedly romantic bent, particularly after she met and fell in love with young Denton, a romanticist of the deepest hue, although he was a mere attendant on a flying-machine stage. A marriage between these two young people was, from the father's point of view, manifestly undesirable, especially as he had intended her to marry Bindon, a very correct and sensible fellow of good means and high standing in the community.

A hypnotist finally prevails over Elizabeth, by a clever ruse, to allow herself to be hypnotised and is made to forget that she ever knew Denton or romance, and to concentrate her interest on Bindon. Denton, heartbroken because Elizabeth knows him no longer, goes to the same hypnotist for help. There he inadvertently learns that Elizabeth had been hypnotised out of her love for him by the same hypnotist, and he manages after a strangely violent struggle, to get Elizabeth back.

They decide to get married and run away to the country until Elizabeth becomes of age and can get the use of her inheritance. For a few days the deserted country seems an ideal place and sleeping on the ground in the open is romantic, but the first real rainstorm makes them change their minds a little and an attack on them by half a dozen shepherd dogs decides them to retrace their steps back to the city and borrow on Elizabeth's prospects.

For three years they are very happy together with their baby girl. But when Elizabeth comes of age and accounts are figured, they learn that the interest on the borrowed money has eaten up practically all of it and Denton must look for a job. Some unseen force operates against a successful search. They sell their household goods, move into cheaper quarters and even bring their baby to the Crèche—a kind of children's nursery on an enormous scale. Finally there is one thing left—the Labor Company—an institution which provides a day's board and lodging, with an occasional extra penny or two—in return for a day's work.

And so one day they are forced to report to this Labor Company and don the blue denim of this lowest class of workers.

Part II.

CHAPTER IV.

Underneath

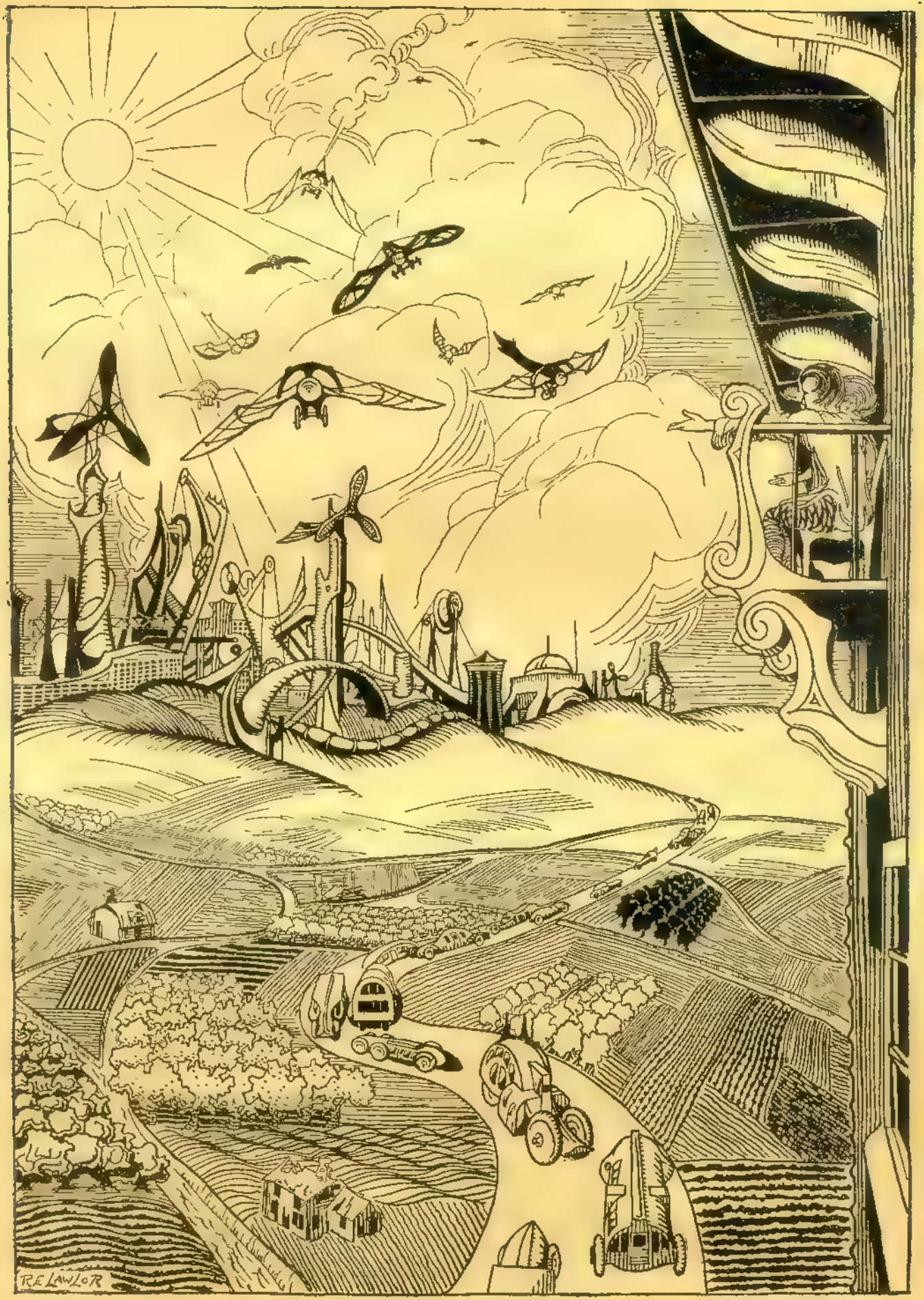
UNDER the stars one may reach upward and touch resignation, whatever the evil thing may be, but in the heat and stress of the day's work we lapse again, come disgust and anger and intolerable moods. How little is all our magnanimity—an accident! a phase! The very Saints of old had first to flee the world. And Denton and his Elizabeth could not flee their world, no longer were there open roads to unclaimed lands where men might live freely—however hardly—and keep their souls in peace. The city had swallowed up mankind.

For a time these two Labor Serfs were kept at their original occupations, she at her brass-stamping and Denton at his press; and then came a move for him that brought with it fresh and still bitterer experiences of life in the underways of the great city. He was transferred to the care of a rather more elaborate press in the central factory of the London Tile Trust.

IN the concluding chapters of this story, Wells spins a most interesting and illuminating tale. While we may not like all that he has to say about the future, it begins to look more and more as though he might be right, and time only will tell whether he was 100% right when he wrote this story. Those of us who contemplate the future as a place where none of us will have to work and where we all will be glorified loafers, are probably due for sad disappointment. The idea certainly does not seem to be held by Wells, nor is it borne out in modern day by day progress. At any rate, you will follow the story with a good deal of interest.

In this new situation he had to work in a long vaulted room with a number of other men, for the most part born Labor Serfs. He came to this intercourse reluctantly. His upbringing had been refined, and, until his ill fortune had brought him to that costume, he had never spoken in his life, except by way of command or some immediate necessity, to the white-faced wearers of the blue canvas. Now at last came contact; he had to work beside them, share their tools, eat with them. To both Elizabeth and himself this seemed a further degradation.

His taste would have seemed extreme to a man of the nineteenth century. But slowly and inevitably in the intervening years a gulf had opened between the wearers of the blue canvas and the classes above, a difference not simply of circumstances and habits of life, but of habits of thought—even of language. The underways had developed a dialect of their own: above, too, had arisen a dialect, a code of thought, a language of "culture," which aimed by a sedulous search after fresh distinction to widen perpetually the space between itself and "vulgarity." The bond of a common faith, moreover, no longer held the race together. The last years of the nineteenth century were distinguished by the rapid development among the pros-



Very wide and spacious was their view . . . the oblongs of the Food Company, broken here and there by the ruins—grotesque little holes and sheds—of the ancient suburbs, and intersected by shining streams of sewage, passed at last into a remote diapering at the foot of the distant hills. . . . The Labor Company's field workers, in huge wheeled mechanical vehicles, were hurrying back to their meals . . . And through the air a dozen little private aeropiles sailed down towards the city.

perous idle of esoteric perversions of the popular religion: glosses and interpretations that reduced the broad teachings of the carpenter of Nazareth to the exquisite narrowness of their lives. And, in spite of their inclination towards the ancient fashion of living, neither Elizabeth nor Denton had been sufficiently original to escape the suggestion of their surroundings. In matters of common behavior they had followed the ways of their class, and so, when they fell at last to be Labor Serfs, it seemed to them almost as though they were falling among offensive inferior animals; they felt as a nineteenth-century duke and duchess might have felt who were forced to take rooms in the Jago.

Their natural impulse was to maintain a "distance." But Denton's first idea of a dignified isolation from his new surroundings was soon rudely dispelled. He had imagined that his fall to the position of a Labor Serf was the end of his lesson, that when their little daughter had died, he had plumbed the deeps of life; but indeed these things were only the beginning. Life demands something more from us than acquiescence. And now in a roomful of machine minders he was to learn a wider lesson, to make the acquaintance of another factor in life, a factor as elemental as the loss of things dear to us, more elemental even than toil.

His quiet discouragement of conversation was an immediate cause of offense—was interpreted, rightly enough I fear, as disdain. His ignorance of the vulgar dialect, a thing upon which he had hitherto prided himself, suddenly took upon itself a new aspect. He failed to perceive at once that his reception of the coarse and stupid but genially intended remarks that greeted his appearance must have stung the makers of these advances like blows in their faces. "Don't understand," he said rather coldly, and at hazard, "No, thank you."

The man who had addressed him stared, scowled, and turned away.

A second, who also failed at Denton's unaccustomed ear, took the trouble to repeat his remark, and Denton discovered he was being offered the use of an oil can. He expressed polite thanks, and this second man embarked upon a penetrating conversation. Denton, he remarked, had been a swell, and he wanted to know how he had come to wear the blue. He clearly expected an interesting record of vice and extravagance. Had Denton ever been at a Pleasure City? Denton was speedily to discover how the existence of these wonderful places of delight permeated and defiled the thought and honor of these unwilling, hopeless workers of the underworld.

His aristocratic temperament resented these questions. He answered "No" curtly. The man persisted with a still more personal question, and this time it was Denton who turned away.

"Gorblimey!" said his interlocutor, much astonished. "He's a swell."

It presently forced itself upon Denton's mind that this remarkable conversation was being repeated in indignant tones to more sympathetic hearers, and that it gave rise to astonishment and ironical laughter. They looked at Denton with manifestly enhanced interest. A curious perception of isolation dawned upon him. He tried to think of his press and its unfamiliar peculiarities. . . .

THE machines kept everybody pretty busy during the first spell, and then came a recess. It was only an interval for refreshment, too brief for any one to go out to a Labor Company dining-room. Denton followed his fellow-workers into a short gallery, in which were a number of bins of refuse from the presses.

Each man produced a packet of food. Denton had no packet. The manager, a careless young man who held his position by influence, had omitted to warn Denton that it was necessary to apply for this provision. He stood apart, feeling hungry. The others drew together in a group and talked in undertones, glancing at him ever and again. He became uneasy. His appearance of disregard cost him an increasing effort. He tried to think of the levers of his new press.

Presently one, a man much shorter but much broader and stouter than Denton, came forward to him. Denton turned to him as unconcernedly as possible. "Here!" said the delegate— as Denton judged him to be—extending a cube of bread in a not too clean hand. He had a swart, broad-nosed face, and his mouth hung down towards one corner.

Denton felt doubtful for the instant whether this was meant for civility or insult. His impulse was to decline. "No, thanks," he said; and, at the man's change of expression, "I'm not hungry."

There came a laugh from the group behind. "Told you so," said the man who had offered Denton the loan of an oil can. "He's top side, he is. You ain't good enough for 'im."

The swart face grew a shade darker.

"Here," said its owner, still extending the bread, and speaking in a lower tone; "you got to eat this. See?"

Denton looked into the threatening face before him, and odd little currents of energy seemed to be running through his limbs and body.

"I don't want it," he said, trying a pleasant smile that twitched and failed.

The thickset man advanced his face, and the bread became a physical threat in his hand. Denton's mind rushed together to the one problem of his antagonist's eyes.

"Eat it," said the swart man.

There came a pause, and then they both moved quickly. The cube of bread described a complicated path, a curve that would have ended in Denton's face; and then his fist hit the wrist of the hand that gripped it, and it flew upward, and out of the conflict—its part played.

He stepped back quickly, fists clenched and arms tense. The hot, dark countenance receded, became an alert hostility, watching its chance. Denton for one instant felt confident, and strangely buoyant and serene. His heart beat quickly. He felt his body alive, and glowing to the tips.

"Scrap, boys!" shouted some one, and then the dark figure had leapt forward, ducked back and sideways,

and come in again. Denton struck out, and was hit. One of his eyes seemed to him to be demolished, and he felt a soft lip under his fist just before he was hit again—this time under the chin. A huge fan of fiery needles shot open. He had a momentary persuasion that his head was knocked to pieces, and then something hit his head and back from behind, and the fight became an uninteresting, an impersonal thing.

He was aware that time—seconds or minutes—had passed, abstract, uneventful time. He was lying with his head in a heap of ashes, and something wet and warm ran swiftly into his neck. The first shock broke up into discrete sensations. All his head throbbed; his eye and his chin throbbed exceedingly, and the taste of blood was in his mouth.

"He's all right," said a voice. "He's opening his eyes."

"Serve him —— well right," said a second.

His mates were standing about him. He made an effort and sat up. He put his hand to the back of his head, and his hair was wet and full of cinders. A laugh greeted the gesture. His eye was partially closed. He perceived what had happened. His momentary anticipation of a final victory had vanished.

"Looks surprised," said some one.

"'Ave any more?" said a wit; and then, imitating Denton's refined accent.

"No, thank you."

Denton perceived the swart man with a blood-stained handkerchief before his face, and somewhat in the background.

"Where's that bit of bread he's got to eat?" said a little ferret-faced creature; and sought with his foot in the ashes of the adjacent bin.

Denton had a moment of internal debate. He knew the code of honor requires a man to pursue a fight he has begun to the bitter end; but this was his first taste of the bitterness. He was resolved to rise again, but he felt no passionate impulse. It occurred to him—and the thought was no very violent spur—that he was perhaps after all a coward. For a moment his will was heavy, a lump of lead.

"'Ere it is," said the little ferret-faced man, and stooped to pick up a cindery cube. He looked at Denton, then at the others.

Slowly, unwillingly, Denton stood up.

A dirty-faced albino extended a hand to the ferret-faced man. "Gimme that toke,"* he said. He advanced threateningly, bread in hand, to Denton. "So you ain't 'ad your bellyful yet," he said. "Eh?"

Now it was coming. "No, I haven't," said Denton, with a catching of the breath, and resolved to try this brute behind the ear before he himself got stunned again. He knew he would be stunned again. He was astonished how ill he had judged himself beforehand. A few ridiculous lunges, and down he would go again. He watched the albino's eyes. The albino was grinning confidently, like a man who plans an agreeable trick. A sudden perception of impending indignities stung Denton.

"You leave 'im alone, Jim," said the swart man suddenly over the blood-stained rag. "He ain't done nothing to you."

The albino's grin vanished. He stopped. He looked from one to the other. It seemed to Denton that the swart man demanded the privilege of his destruction. The albino would have been better.

"You leave 'im alone," said the swart man. "See? 'E's 'ad 'is licks."

A CLATTERING bell lifted up its voice and solved the situation. The albino hesitated. "Lucky for you," he said, adding a foul metaphor, and turned with the others towards the press-room again. "Wait for the end of the spell, mate," said the albino over his shoulder—an afterthought. The swart man waited for the albino to precede him. Denton realized that he had a reprieve.

The men passed towards an open door. Denton became aware of his duties, and hurried to join the tail of the queue. At the doorway of the vaulted gallery of presses a yellow-uniformed labor policeman stood ticking a card. He had ignored the swart man's hemorrhage.

"Hurry up there!" he said to Denton.

"Hello!" he said, at the sight of his facial disarray. "Who's been hitting *you?*"

"That's my affair," said Denton.

"Not if it spiles your work, it ain't," said the man in yellow. "You mind that."

Denton made no answer. He was a rough—a laborer. He wore the blue canvas. The laws of assault and battery, he knew, were not for the likes of him. He went to his press

He could feel the skin of his brow and chin and head lifting themselves to noble bruises, felt the throb and pain of each aspiring contusion. His nervous system slid down to lethargy; at each movement in his press adjustment he felt he lifted a weight. And as for his honor—that too throbbed and puffed. How did he stand? What precisely had happened in the last ten minutes? What would happen next? He knew that here was enormous matter for thought, and he could not think save in disordered snatches.

His mood was a sort of stagnant astonishment. All his conceptions were overthrown. He had regarded his security from physical violence as inherent, as one of the conditions of life. So, indeed, it had been while he wore his middle-class costume, had his middle-class property to serve for his defense. But who would interfere among Labor roughs fighting together? And indeed in those days no man would. In the Underworld there was no law between man and man; the law and machinery of the state had become for them something that held men down, fended them off from much desirable property and pleasure, and that was all. Violence, that ocean in which the brutes live forever, and from which a thousand dykes and contrivances have won our hazardous civilized life, had flowed in again upon the sinking underways and submerged them. The fist ruled.

Denton had come right down at last to the elemental—fist and trick and the stubborn heart and fellowship—even as it was in the beginning.

*Toke is an English slang word meaning food, especially bread

The rhythm of his machine changed, and his thoughts were interrupted.

Presently he could think again. Strange how quickly things had happened! He bore these men who had thrashed him no very vivid ill-will. He was bruised and enlightened. He saw with absolute fairness now the reasonableness of his unpopularity. He had behaved like a fool. Disdain, seclusion, are the privilege of the strong. The fallen aristocrat still clinging to his pointless distinction is surely the most pitiful creature of pretense in all this claimant universe. Good heavens! what was there for him to despise in these men?

What a pity he had not appreciated all this better five hours ago!

What would happen at the end of the spell? He could not tell. He could not imagine. He could not imagine the thoughts of these men. He was sensible only of their hostility and utter want of sympathy. Vague possibilities of shame and violence chased one another across his mind. Could he devise some weapon? He recalled his assault upon the hypnotist, but there were no detachable lamps here. He could see nothing that he could catch up in his defense.

For a space he thought of a headlong bolt for the security of the public ways directly the spell was over. Apart from the trivial consideration of his self-respect, he perceived that this would be only a foolish postponement and aggravation of his trouble. He perceived the ferret-faced man and the albino talking together with their eyes towards him. Presently they were talking to the swart man, who stood with his broad back studiously towards Denton.

At last came the end of the second spell. The lender of oil cans stopped his press sharply and turned round, wiping his mouth with the back of his hand. His eyes had the quiet expectation of one who seats himself in a theatre.

Now was the crisis, and all the little nerves of Denton's being seemed leaping and dancing. He had decided to show fight if any fresh indignity was offered him. He stopped his press and turned. With an enormous affectation of ease he walked down the vault and entered the passage of the ash pits, only to discover he had left his jacket—which he had taken off because of the heat of the vault—beside his press. He walked back. He met the albino eye to eye.

He heard the ferret-faced man in expostulation. "'E reely ought, eat it," said the ferret-faced man. "'E did reely."

"No—you leave 'im alone," said the swart man.

APPARENTLY nothing further was to happen to him that day. He passed out to the passage and staircase that led up to the moving platforms of the city.

He emerged on the livid brilliance and streaming movement of the public street. He became acutely aware of his disfigured face, and felt his swelling bruises with a limp, investigatory hand. He went up to the swiftest platform, and seated himself on a Labor Company bench.

He lapsed into a pensive torpor. The immediate dangers and stresses of his position he saw with a sort of static clearness. What would they do to-morrow? He could not tell. What would Elizabeth think of his brutalization? He could not tell. He was exhausted. He was aroused presently by a hand upon his arm.

He looked up, and saw the swart man seated beside him. He started. Surely he was safe from violence in the public way!

The swart man's face retained no traces of his share in the fight; his expression was free from hostility—seemed almost deferential. "'Scuse me," he said, with a total absence of truculence. Denton realized that no assault was intended. He stared, awaiting the next development.

It was evident the next sentence was premeditated. "Whad—I—was—going—to say was this," said the swart man, and sought through a silence for further words.

"Whad—I—was—going—to say—was this," he repeated.

Finally he abandoned that gambit. "*You're* aw right," he cried, laying a grimy hand on Denton's grimy sleeve. "*You're* aw right. You're a ge'man. Sorry—very sorry. Wanted to tell you that."

Denton realized that there must exist motives beyond a mere impulse to abominable proceedings in the man. He meditated, and swallowed an unworthy pride.

"I did not mean to be offensive to you," he said, "in refusing that bit of bread."

"Meant it friendly," said the swart man, recalling the scene; "but—in front of that blarsted Whitey and his snigger—Well—I *'ad* to scrap."

"Yes," said Denton with sudden fervor: "I was a fool."

"Ah!" said the swart man, with great satisfaction. "*That's* aw right. Shake!"

And Denton shook.

The moving platform was rushing by the establishment of a face moulder, and its lower front was a huge display of mirror, designed to stimulate the thirst for more symmetrical features. Denton caught the reflection of himself and his new friend, enormously twisted and broadened. His own face was puffed, one-sided, and blood-stained; a grin of idiotic and insincere amiability distorted its latitude. A wisp of hair occluded one eye. The trick of the mirror presented the swart man as a gross expansion of lip and nostril. They were linked by shaking hands. Then abruptly this vision passed—to return to memory in the anaemic meditations of a waking dawn.

As he shook, the swart man made some muddled remark, to the effect that he had always known he could get on with a gentleman if one came his way. He prolonged the shaking until Denton, under the influence of the mirror, withdrew his hand. The swart man became pensive, spat impressively on the platform, and resumed his theme.

"Whad I was going to say was this," he said; was gravelled, and shook his head at his foot.

Denton became curious. "Go on," he said, attentive.

The swart man took the plunge. He grasped Denton's arm, became intimate in his attitude. "'Scuse me," he said. "Fact is, you done know *'ow* to scrap. Done know *'ow* to. Why—you done know 'ow to

begin. You'll get killed if you don't mind. 'Ouldn' your hands—*There!*"

He reinforced his statement by objurgation, watching the effect of each oath with a wary eye.

"F'r instance. You're tall. Long arms. You get a longer reach than any one in the brasted vault. Gobblimey, but I thought I'd got a Tough on. 'Stead of which. . . . 'Scuse me. I wouldn't have *'it* you if I'd known. It's like fighting sacks. 'Tisn't right. Y'r arms seemed 'ung on 'ooks. Reg'lar—'ung on 'ooks. There!"

Denton stared, and then surprised and hurt his battered chin by a sudden laugh. Bitter tears came into his eyes.

"Go on," he said.

The swart man reverted to his formula. He was good enough to say he liked the look of Denton, thought he had stood up "amazing plucky. On'y pluck ain't no good—ain't no brasted good—if' you don't 'old your 'ands.

"Whad I was going to say was this," he said. "Lemme show you 'ow to scrap. Jest lemme. You're ig'nant, you ain't no class; but you might be a very decent scrapper—very decent. Shown. That's what I meant to say."

Denton hesitated. "But—" he said, "I can't give you anything—"

"That's the ge'man all over," said the swart man. "Who arst you to?"

"But your time?"

"If you don't get learnt scrapping you'll get killed,—don't you make no bones of that."

Denton thought. "I don't know," he said.

He looked at the face beside him, and all its native coarseness shouted at him. He felt a quick revulsion from his transient friendliness. It seemed to him incredible that it should be necessary for him to be indebted to such a creature.

"The chaps are always scrapping," said the swart man. "Always. And, of course—if one gets waxy and 'its you vital. . . ."

"By God!" cried Denton; "I wish one would."

"Of course, if you feel like that—"

"You don't understand."

"P'raps I don't," said the swart man; and lapsed into a fuming silence.

When he spoke again his voice was less friendly, and he prodded Denton by way of address. "Look see!" he said; "are you going to let me show you 'ow to scrap?"

"It's tremendously kind of you," said Denton; "but—"

There was a pause. The swart man rose and bent over Denton.

"Too much ge'man," he said—"eh? I got a red face. . . . By gosh! you are—you *are* a brasted fool!"

He turned away, and instantly Denton realized the truth of this remark.

THE swart man descended with dignity to a cross way, and Denton, after a momentary impulse to pursuit, remained on the platform. For a time the things that had happened filled his mind. In one day his graceful system of resignation had been shattered beyond hope Brute force, the final, the fundamental, had thrust its face through all his explanations and glosses and consolations and grinned enigmatically. Though he was hungry and tired, he did not go on directly to the Labor Hotel, where he would meet Elizabeth. He found he was beginning to think, he wanted very greatly to think; and so, wrapped in a monstrous cloud of meditation, he went the circuit of the city on his moving platform twice. You figure him, tearing through the glaring, thunder-voiced city at a pace of fifty miles an hour, the city upon the planet that spins along its chartless path through space many thousands of miles an hour, funking most terribly, and trying to understand why the heart and will in him should suffer and keep alive.

When at last he came to Elizabeth, she was white and anxious. He might have noted she was in trouble, had it not been for his own preoccupation. He feared most that she would desire to know every detail of his indignities, that she would be sympathetic or indignant. He saw her eyebrows rise at the sight of him.

"I've had rough handling," he said, and gasped. "It's too fresh—too hot. I don't want to talk about it." He sat down with an unavoidable air of sullenness.

She stared at him in astonishment, and as she read something of the significant hieroglyphic of his battered face, her lips whitened. Her hand—it was thinner now than in the days of their prosperity, and her first finger was a little altered by the metal punching she did—clenched convulsively. "This horrible world!" she said, and said no more.

In these latter days they had become a very silent couple; they said scarcely a word to each other that night, but each followed a private train of thought. In the small hours, as Elizabeth lay awake, Denton started up beside her suddenly—he had been lying as still as a dead man.

"I cannot stand it!" cried Denton. "I *will* not stand it!"

She saw him dimly, sitting up; saw his arm lunge as if in a furious blow at the enshrouding night. Then for a space he was still.

"It is too much—it is more than one can bear!"

She could say nothing. To her, also, it seemed that this was as far as one could go. She waited through a long stillness. She could see that Denton sat with his arms about his knees, his chin almost touching them.

Then he laughed.

"No," he said at last, "I'm going to stand it. That's the peculiar thing. There isn't a grain of suicide in us—not a grain. I suppose all the people with a turn that way have gone. We're going through with it—to the end."

Elizabeth thought grayly, and realized that this also was true.

"We're going through with it. To think of all who have gone through with it: all the generations—endless—endless. Little beasts that snapped and snarled, snapping and snarling, snapping and snarling, generation after generation."

His monotone, ended abruptly, resumed after a vast interval.

"There were ninety thousand years of stone age. A Denton somewhere in all those years. Apostolic succession. The grace of going through. Let me see! Ninety-nine hundred—three nines, twenty-seven—*three thousand* generations of men!—men more or less. And each fought, and was bruised, and shamed, and somehow held his own—going through with it—passing it on. . . . And thousands more to come perhaps—thousands!

"Passing it on. I wonder if they will thank us."

His voice assumed an argumentative note. "If one could find something definite. . . . If one could say, 'This is why—this is why it goes on. . . .'"

He became still, and Elizabeth's eyes slowly separated him from the darkness until at last she could see how he sat with his head resting on his hand. A sense of the enormous remoteness of their minds came to her; that dim suggestion of another being seemed to her a figure of their mutual understanding. What could he be thinking now? What might he not say next? Another age seemed to elapse before he sighed and whispered: "No. I don't understand it. No!" Then a long interval, and he repeated this. But the second time it had the tone almost of a solution.

She became aware that he was preparaing to lie down. She marked his movements, perceived with astonishment how he adjusted his pillow with a careful regard to comfort. He lay down with a sigh of contentment almost. His passion had passed. He lay still, and presently his breathing became regular and deep.

BUT Elizabeth remained with eyes wide open in the darkness, until the clamor of a bell and the sudden brilliance of the electric light warned them that the Labor Company had need of them for yet another day.

That day came a scuffle with the albino Whitey and the little ferret-faced man. Blunt, the swart artist in scrapping, having first let Denton grasp the bearing of his lesson, intervened, not without a certain quality of patronage. "Drop 'is 'air, Whitey, and let the man be," said his gross voice through a shower of indignities. "Can't you see 'e don't know *'ow* to scrap?" And Denton, lying shamefully in the dust, realized that he must accept that course of instruction after all.

He made his apology straight and clean. He scrambled up and walked to Blunt. "I was a fool, and you are right," he said. "If it isn't too late. . . ."

That night, after the second spell, Denton went with Blunt to certain waste and slime-soaked vaults under the Port of London, to learn the first beginnings of the high art of scrapping as it had been perfected in the great world of the underways: how to hit or kick a man so as to hurt him excruciatingly or make him violently sick, how to hit or kick "vital," how to use glass in one's garments as a club and to spread red ruin with various domestic implements, how to anticipate and demolish your adversary's intentions in other directions; all the pleasant devices, in fact, that had grown up among the disinherited of the great cities of the twentieth and twenty-first centuries, were spread out by a gifted exponent for Denton's learning. Blunt's bashfulness fell from him as the instruction proceeded, and he developed a certain expert dignity, a quality of fatherly consideration. He treated Denton with the utmost consideration, only "flicking him up a bit" now and then, to keep the interest hot, and roaring with laughter at a happy fluke of Denton's that covered his mouth with blood.

"I'm always keerless of my mouth," said Blunt, admitting a weakness. "Always. It don't seem to matter, like, just getting bashed in the mouth—not if your chin's all right. Tastin' blood does me good. Always. But I better not 'it you again."

Denton went home, to fall asleep exhausted and wake in the small hours with aching limbs and all his bruises tingling. Was it worth while that he should go on living? He listened to Elizabeth's breathing, and remembering that he must have awaked her the previous night, he lay very still. He was sick with infinite disgust at the new conditions of his life. He hated it all, hated even the genial savage who had protected him so generously. The monstrous fraud of civilization glared stark before his eyes; he saw it as a vast lunatic growth, producing a deepening torrent of savagery below, and above ever more flimsy gentility and silly wastefulness. He could see no redeeming reason, no touch of honor, either in the life he had led or in this life to which he had fallen. Civilization presented itself as some catastrophic product as little concerned with men—save as victims—as a cyclone or a planetary collision. He, and therefore all mankind, seemed living utterly in vain. His mind sought some strange expedients of escape, if not for himself, then at least for Elizabeth. But he meant them for himself. What if he hunted up Mwres and told him of their disaster? It came to him as an astonishing thing how utterly Mwres and Bindon had passed out of his range. Where were they? What were they doing? From that he passed to thoughts of utter dishonor. And finally, not arising in any way out of this mental tumult, but ending it as dawn ends the night, came the clear and obvious conclusion of the night before: the conviction that he had to go through with things; that, apart from any remoter view and quite sufficient for all his thought and energy, he had to stand up and fight among his fellows and quit himself like a man.

The second night's instruction was perhaps less dreadful than the first; and the third was even endurable, for Blunt dealt out some praise. The fourth day Denton chanced upon the fact that the ferret-faced man was a coward. There passed a fortnight of smouldering days and feverish instruction at night; Blunt, with many blasphemies, testified that never had he met so apt a pupil; and all night long Denton dreamt of kicks and counters and gouges and cunning tricks. For all that time no further outrages were attempted, for fear of Blunt; and then came the second crisis. Blunt did not come one day—afterwards he admitted his deliberate intention—and through the tedious morning Whitey awaited the interval between the spells with an ostentatious impatience.

He knew nothing of the scrapping lessons, and he spent the time in telling Denton and the vault generally of certain disagreeable proceedings he had in mind.

WHITEY was not popular, and the vault disgorged to see him haze the new man with only a languid interest. But matters changed when Whitey's attempt to open the proceedings by kicking Denton in the face was met by an excellently executed duck, catch and throw, that completed the flight of Whitey's foot in its orbit and brought Whitey's head into the ash-heap that had once received Denton's. Whitey arose a shade whiter, and now blasphemously bent upon vital injuries. There were indecisive passages, foiled enterprises that deepened Whitey's evidently growing perplexity; and then things developed into a grouping of Denton uppermost with Whitey's throat in his hand, his knee on Whitey's chest, and a tearful Whitey with a black face, protruding tongue and broken finger endeavoring to explain the misunderstanding by means of hoarse sounds. Moreover, it was evident that among the bystanders there had never been a more popular person than Denton.

Denton with proper precaution, released his antagonist and stood up. His blood seemed changed to some sort of fluid fire, his limbs felt light and supernaturally strong. The idea that he was a martyr in the civilization machine had vanished from his mind. He was a man in a world of men.

The little ferret-faced man was the first in the competition to pat him on the back. The lender of oil cans was a radiant sun of genial congratulation. . . . It seemed incredible to Denton that he had ever thought of despair.

Denton was convinced that not only had he to go on through with things, but that he could. He sat on the canvas pallet expounding this new aspect to Elizabeth. One side of his face was bruised. She had not recently fought, she had not been patted on the back, there were no hot bruises upon her face, only a pallor and a new line or so about the mouth. She was taking the woman's share. She looked steadfastly at Denton in his new mood of prophecy. "I feel that there is something," he was saying, "something that goes on, a Being of Life in which we live and move and have our being, something that began fifty—a hundred million years ago, perhaps, that goes on—on: growing, spreading, to things beyond us—things that will justify us all. . . . That will explain and justify my fighting—these bruises, and all the pain of it. It's the chisel—yes, the chisel of the Maker. If only I could make you feel as I feel, if I could make you! You *will*, dear, I know you will."

"No," she said in a low voice. "No, I shall not."

"So I might have thought—"

She shook her head. "No," she said, "I have thought as well. What you say—doesn't convince me."

She looked at his face resolutely. "I hate it," she said, and caught at her breath. "You do not understand, you do not think. There was a time when you said things and I believed them. I am growing wiser. You are a man, you can fight, force your way. You do not mind bruises. You can be coarse and ugly, and still a man. Yes—it makes you. It makes you. You are right. Only a woman is not like that. We are different. We have let ourselves get civilized too soon. This underworld is not for us."

She paused and began again.

"I hate it! I hate this horrible canvas! I hate it more than—more than the worst that can happen. It hurts my fingers to touch it. It is horrible to the skin. And the women I work with day after day! I lie awake at nights and think how I may be growing like them. . . ."

She stopped. "I *am* growing like them," she cried passionately.

Denton stared at her distress. "But—" he said and stopped.

"You don't understand. What have I? What have I to save me? *You* can fight. Fighting is man's work. But women—women are different. . . . I have thought it all out, I have done nothing but think night and day. Look at the color of my face! I cannot go on. I cannot endure this life . . . I cannot endure it."

She stopped. She hesitated.

"You do not know all," she said abruptly, and for an instant her lips had a bitter smile. "I have been asked to leave you."

"Leave me!"

She made no answer save an affirmative movement of the head.

DENTON stood up sharply. They stared at one another through a long silence.

Suddenly she turned herself about, and flung face downward upon their canvas bed. She did not sob, she made no sound. She lay still upon her face. After a vast, distressful void her shoulders heaved and she began to weep silently.

"Elizabeth!" he whispered—"Elizabeth!"

Very softly he sat down beside her, bent down, put his arm across her in a doubtful caress, seeking vainly for some clue to this intolerable situation.

"Elizabeth," he whispered in her ear.

She thrust him from her with her hand. "I cannot bear a child to be a slave!" and broke out into loud and bitter weeping.

Denton's face changed—became blank dismay. Presently he slipped from the bed and stood on his feet. All the complacency had vanished from his face, had given place to impotent rage. He began to rave and curse at the intolerable forces which pressed upon him, at all the accidents and hot desires and heedlessness that mock the life of man. His little voice rose in that little room, and he shook his fist, this animalcule of the earth, at all that environed him about, at the millions about him, at his past and future and all the insensate vastness of the overwhelming city.

CHAPTER V.

Bindon Intervenes

IN Bindon's younger days he had dabbled in speculation and made three brilliant flukes. For the rest of his life he had the wisdom to let gambling alone, and the conceit to believe himself a very clever man. A certain desire for influence and reputation interested him in the business intrigues of the giant city in which his flukes were made. He became at last one of the most influential shareholders in the

company that owned the London flying-stages to which the aeroplanes came from all parts of the world. This much for his public activities. In his private life he was a man of pleasure. And this is the story of his heart.

But before proceeding to such depths, one must devote a little time to the exterior of this person. Its physical basis was slender, and short, and dark; and the face, which was fine-featured and assisted by pigments, varied from an insecure self-complacency to an intelligent uneasiness. His face and head had been depilated, according to the cleanly and hygienic fashion of the time, so that the color and contour of his hair varied with his costume. This he was constantly changing.

At times he would distend himself with pneumatic vestments in the rococo vein. From among the billowy developments of this style, and beneath a translucent and illuminated headdress, his eye watched jealously for the respect of the less fashionable world. At other times he emphasized his elegant slenderness in close-fitting garments of black satin. For effects of dignity he would assume broad pneumatic shoulders, from which hung a robe of carefully arranged folds of China silk, and a classical Bindon in pink tights was also a transient phenomenon in the eternal pageant of Destiny. In the days when he hoped to marry Elizabeth, he sought to impress and charm her, and at the same time to take off something of his burden of forty years, by wearing the last fancy of the contemporary buck, a costume of elastic material with distensible warts and horns, changing in color as he walked, by an ingenious arrangement of versatile chromatophores.* And no doubt, if Elizabeth's affection had not been already engaged by the worthless Denton, and if her tastes had not had that odd bias for old-fashioned ways, this extremely *chic* conception would have ravisehd her. Bindon had consulted Elizabeth's father before presenting himself in this garb—he was one of those men who always invite criticism of their costume—and Mwres had pronounced him all that the heart of woman could desire. But the affair of the hypnotist proved that his knowledge of the heart of woman was incomplete.

Bindon's idea of marrying had been formed some little time before Mwres threw Elizabeth's budding womanhood in his way. It was one of Bindon's most cherished secrets that he had a considerable capacity for a pure and simple life of a grossly sentimental type. The thought imparted a sort of pathetic seriousness to the offensive and quite inconsequent and unmeaning excesses, which he was pleased to regard as dashing wickedness, and which a number of good people also were so unwise as to treat in that desirable manner. As a consequence of these excesses, and perhaps by reason also of an inherited tendency to early decay, his liver became seriously affected, and he suffered increasing inconvenience when traveling by aeroplane. It was during his convalescence from a protracted bilious attack that it occurred to him that in spite of all the terrible fascinations of Vice, if he found a beautiful, gentle, good young woman of a not too violently intellectual type to devote her life to him, he might yet be saved to Goodness, and even rear a spirited family in his likeness to solace his declining years. But like so many experienced men of the world, he doubted if there were any good women. Of such as he had heard tell he was outwardly sceptical and privately much afraid.

WHEN the aspiring Mwres effected his introduction to Elizabeth, it seemed to him that his good fortune was complete. He fell in love with her at once. Of course, he had always been falling in love since he was sixteen, in accordance with the extremely varied recipes to be found in the accumulated literature of many centuries. But this was different. This was real love. It seemed to him to call forth all the lurking goodness in his nature. He felt that for her sake he could give up a way of life that had already produced the gravest lesions on his liver and nervous system. His imagination presented him with idyllic pictures of the life of the reformed rake. He would never be sentimental with her, or silly; but always a little cynical and bitter, as became the past. Yet he was sure she would have an intuition of his real greatness and goodness. And in due course he would confess things to her, pour his version of what he regarded as his wickedness—showing what a complex of Goethe, and Benvenuto Cellini, and Shelley, and all those other chaps he really was—into her shocked, very beautiful, and no doubt sympathetic ear. And preparatory to these things he wooed her with infinite subtlety and respect. And the reserve with which Elizabeth treated him seemed nothing more nor less than an exquisite modesty touched and enhanced by an equally exquisite lack of ideas.

Bindon knew nothing of her wandering affections, nor of the attempt made by Mwres to utilize hypnotism as a corrective to this digression of her heart; he conceived he was on the best of terms with Elizabeth, and had made her quite successfully various significant presents of jewelry and the more virtuous cosmetics, when her elopement with Denton threw the world out of gear for him.

His first aspect of the matter was rage begotten of wounded vanity, and as Mwres happened to be the most convenient person, he vented the first brunt of it upon him.

He went immediately and insulted the desolate father grossly, and then spent an active and determined day going to and fro about the city and interviewing people in a consistent and partly successful attempt to ruin that matrimonial speculator. The effectual nature of these activities gave him a temporary exhilaration, and he went to the dining-place he had frequented in his wicked days in a devil-may-care frame of mind, and dined altogether too amply and cheerfully with two other golden youths in the early forties. He threw up the game; no woman was worth being good for, and he astonished even himself by the strain of witty cynicism he developed. One of the other desperate blades, warmed with wine, made a facetious allusion

* A pigment cell, especially one capable of changing its form or size, causing changing of color in the translucent skin by bringing the pigment near the surface or by contracting, concentrating it in the deeper layers.

to his disappointment, but at the time this did not seem unpleasant.

The next morning found his liver and temper inflamed. He kicked his phonographic-news machine to pieces, dismissed his valet, and resolved that he would perpetrate a terrible revenge upon Elizabeth. Or Denton. Or somebody. But anyhow, it was to be a terrible revenge; and the friend who had made fun at him should no longer see him in the light of a foolish girl's victim. He knew something of the little property that was due to her, and that this would be the only support of the young couple until Mwres should relent. If Mwres did not relent, and if unpropitious things should happen to the affair in which Elizabeth's expectations lay, they would come upon evil times and be sufficiently amenable to temptation of a sinister sort. Bindon's imagination, abandoning its beautiful idealism altogether, expanded the idea of temptation of a sinister sort. He figured himself as the implacable, the intricate and powerful man of wealth pursuing this maiden who had scorned him. And suddenly her image came upon his mind, vivid and dominant, and for the first time in his life Bindon realized something of the real power of passion.

His imagination stood aside like a respectful foot man who has done his work in ushering in the emotion.

"My God!" cried Bindon: "I will have her! If I have to kill myself to get her! And that other fellow—!"

After an interview with his medical man and a penance for his overnight excesses in the form of bitter drugs, a mitigated but absolutely resolute Bindon sought out Mwres. Mwres he found properly smashed, and impoverished and humble, in a mood of frantic self-preservation, ready to sell himself body and soul, much more any interest in a disobedient daughter, to recover his lost position in the world. In the reasonable discussion that followed, it was agreed that these misguided young people should be left to sink into distress, or possibly even assisted towards that improving discipline by Bindon's financial influence.

"And then?" said Mwres.

"They will come to the Labor Company," said Bindon. "They will wear the blue canvas."

"And then?"

"She will divorce him," he said, and sat for a moment intent upon that prospect. For in those days the austere limitations of divorce of Victorian times were extraordinarily relaxed, and a couple might separate on a hundred different scores.

THEN suddenly Bindon astonished himself and Mwres by jumping to his feet. "She *shall* divorce him!" he cried. "I will have it so—I will work it so. By God! it shall be so. He shall be disgraced, so that she must. He shall be smashed and pulverized."

The idea of smashing and pulverizing inflamed him further. He began a Jovian pacing up and down the little office. "I will have her," he cried. "I *will* have her! Heaven and Hell shall not save her from me!" His passion evaporated in its expression, and left him at the end simply histrionic. He struck an attitude and ignored with heroic determination a sharp twinge of pain about the diaphragm. And Mwres sat with his pneumatic cap deflated and himself very visibly impressed.

And so, with a fair persistency, Bindon set himself to the work of being Elizabeth's malignant providence, using with ingenious dexterity every particle of advantage wealth in those days gave a man over his fellow-creatures. A resort to the consolations of religion hindered these operations not at all. He would go and talk with an interesting, experienced and sympathetic Father of the Huysmanite sect of the Isis cult, about all the irrational little proceedings he was pleased to regard as his heaven-dismaying wickedness, and the interesting, experienced and sympathetic Father representing Heaven dismayed, would with a pleasing affectation of horror, suggest simple and easy penances, and recommend a monastic foundation that was airy, cool, hygienic, and not vulgarized, for viscerally disordered penitent sinners of the refined and wealthy type. And after these excursions, Bindon would come back to London quite active and passionate again. He would machinate with really considerable energy, and repair to a certain gallery high above the street of moving ways, from which he could view the entrance to the barrack of the Labor Company in the ward which sheltered Denton and Elizabeth. And at last one day he saw Elizabeth go in, and thereby his passion was renewed.

So in the fullness of time the complicated devices of Bindon ripened, and he could go to Mwres and tell him that the young people were near despair.

"It's time for you," he said, "to let your parental affections have play. She's been in blue canvas some months, and they've been cooped together in one of those Labor dens, and the little girl is dead. She knows now what his manhood is worth to her, by way of protection, poor girl. She'll see things now in a clearer light. You go to her—I don't want to appear in this affair yet—and point out to her how necessary it is that she should get a divorce from him. . . ."

"She's obstinate," said Mwres doubtfully.

"Spirit!" said Bindon. She's a wonderful girl—a wonderful girl!"

"She'll refuse."

"Of course she will. But leave it open to her. Leave it open to her. And some day—in that stuffy den, in that irksome, toilsome life they can't help it—*they'll have a quarrel*. And then—"

Mwres meditated over the matter, and did as he was told.

Then Bindon, as he had arranged with his spiritual adviser, went into retreat. The retreat of the Huysmanite sect was a beautiful place, with the sweetest air in London, lit by natural sunlight, and with restful quadrangles of real grass open to the sky, where at the same time the penitent man of pleasure might enjoy all the pleasures of loafing and all the satisfaction of distinguished austerity. And, save for participation in the simple and wholesome dietary of the place and in certain magnificent chants, Bindon spent all his time in meditation upon the theme of Elizabeth, and the extreme purification his soul had undergone since he first saw her, and whether he would be able to get a

dispensation to marry her from the experienced and sympathetic Father in spite of the approaching "sin" of her divorce; and then . . . Bindon would lean against a pillar of the quadrangle and lapse into reveries on the superiority of virtuous love to any other form of indulgence. A curious feeling in his back and chest that was trying to attract his attention, a disposition to be hot or shiver, a general sense of ill-health and cutaneous discomfort he did his best to ignore. All that of course belonged to the old life that he was shaking off.

When he came out of retreat he went at once to Mwres to ask for news of Elizabeth. Mwres was clearly under the impression that he was an exemplary father, profoundly touched about the heart by his child's unhappiness. "She was pale," he said, greatly moved; "She was pale. When I asked her to come away and leave him—and be happy—she put her head down upon the table"—Mwres sniffed—"and cried."

His agitation was so great that he could say no more.

"Ah!" said Bindon, respecting this manly grief. "Oh!" said Bindon quite suddenly, with his hand to his side.

Mwres looked up sharply out of the pit of his sorrows, startled. "What's the matter?" he asked, visibly concerned.

"A most violent pain. Excuse me! You were telling me about Elizabeth."

AND Mwres, after a decent solicitude for Bindon's pain, proceeded with his report. It was even unexpectedly hopeful. Elizabeth, in her first emotion at discovering that her father had not absolutely deserted her, had been frank with him about her sorrows and disgusts.

"Yes," said Bindon, magnificently, "I shall have her yet." And then that novel pain twitched him for the second time.

For these lower pains the priest was comparatively ineffectual, inclining rather to regard the body and them as mental illusions amenable to contemplation; so Bindon took it to a man of a class he loathed, a medical man of extraordinary repute and incivility. "We must go all over you," said the medical man, and did so with the most disgusting frankness. "Did you ever bring any children into the world?" asked this gross materialist among other impertinent questions.

"Not that I know of," said Bindon, too amazed to stand upon his dignity.

"Ah!" said the medical man, and proceeded with his punching and sounding. Medical science in those days was just reaching the beginnings of precision. "You'd better go right away," said the medical man, "and make the Euthanasia. The sooner the better."

Bindon gasped. He had been trying not to understand the technical explanations and anticipations in which the medical man had indulged.

"I say!" he said. "But do you mean to say . . . Your science . . ."

"Nothing," said the medical man. "A few opiates. The thing is your own doing, you know, to a certain extent."

"I was sorely tempted in my youth."

"It's not that so much. But you come of a bad stock. Even if you'd have taken precautions you'd have had bad times to wind up with. The mistake was getting born. The indiscretions of the parents. And you've shirked exercise, and so forth."

"I had no one to advise me."

"Medical men are always willing."

"I was a spirited young fellow."

"We won't argue; the mischief's done now. You've lived. We can't start you again. You ought never to have started at all. Frankly—the Euthanasia!"

Bindon hated him in silence for a space. Every word of this brutal expert jarred upon his refinements. He was so gross, so impermeable to all the subtler issues of being. But it is no good picking a quarrel with a doctor. "My religious beliefs," he said, "I don't approve of suicide."

"You've been doing it all your life."

"Well, anyhow, I've come to take a serious view of life now."

"You're bound to, if you go on living. You'll hurt. But for practical purposes it's late. However, if you mean to do that—perhaps I'd better mix you a little something. You'll hurt a great deal. These little twinges . . ."

"Twinges!"

"Mere preliminary notices."

"How long can I go on? I mean, before I hurt—really."

"You'll get it hot soon. Perhaps three days."

Bindon tried to argue for an extension of time, and in the midst of his pleading gasped, put his hand to his side. Suddenly the extraordinary pathos of his life came to him clear and vivid. "It's hard," he said. "It's infernally hard! I've been no man's enemy but my own. I've always treated everybody quite fairly."

The medical man stared at him without any sympathy for some seconds. He was reflecting how excellent it was that there were no more Bindons to carry on that line of pathos. He felt quite optimistic. Then he turned to his telephone and ordered up a prescription from the Central Pharmacy.

He was interrupted by a voice behind him. "By God!" cried Bindon; "I'll have her yet."

The physician stared over his shoulder at Bindon's expression, and then altered the prescription.

So soon as this painful interview was over, Bindon gave way to rage. He settled that the medical man was not only an unsympathetic brute and wanting in the first beginnings of a gentleman, but also highly incompetent; and he went off to four other practitioners in succession, with a view to the establishment of this intuition. But to guard against surprises he kept that little prescription in his pocket. With each he began by expressing his grave doubts of the first doctor's intelligence, honesty and professional knowledge, and then stated his symptoms, suppressing only a few more material facts in each case. These were always subsequently elicited by the doctor. In spite of the welcome depreciation of another practitioner, none of these eminent specialists would give Bindon any hope of eluding the anguish and helplessness that loomed now close upon him. To the last of them he unburdened

his mind of an accumulated disgust with medical science. "After centuries and centuries," he exclaimed hotly; "and you can do nothing—except admit your helplessness. I say, 'save me' —and what do you do?"

"No doubt it's hard on you," said the doctor. "But you should have taken precautions."

"How was I to know?"

"It wasn't our place to run after you," said the medical man, picking a thread of cotton from his purple sleeve. "Why should we save *you* in particular? You see—from one point of view—people with imaginations and passions like yours have to go—they have to go."

"Go?"

"Die out. It's an eddy."

HE was a young man with a serene face He smiled at Bindon. "We get on with research, you know; we give advice when people have the sense to ask for it. And we bide our time."

"Bide your time?"

"We hardly know enough yet to take over the management, you know."

"The management?"

"You needn't be anxious. Science is young yet. It's got to keep on growing for a few generations. We know enough now to know we don't know enough yet. . . . But the time is coming, all the same. *You* won't see the time. But, between ourselves, you rich men and party bosses, with your natural play of the passions and patriotism and religion and so forth, have made rather a mess of things; haven't you? These Underways! And all that sort of thing. Some of us have a sort of fancy that in time we may know enough to take over a little more than the ventilation and drains. Knowledge keeps on piling up, you know. It keeps on growing. And there's not the slightest hurry for a generation or so. Some day—some day, men will live in a different way." He looked at Bindon and meditated. "There'll be a lot of dying out before that day can come."

Bindon attempted to point out to this young man how silly and irrelevant such talk was to a sick man like himself, how impertinent and uncivil it was to him, an older man occupying a position in the official world of extraordinary power and influence. He insisted that a doctor was paid to cure people—he laid great stress on *"paid"*—and had no business to glance even for a moment at "those other questions." "But we do," said the young man, insisting upon facts, and Bindon lost his temper.

His indignation carried him home. That these incompetent impostors, who were unable to save the life of a really influential man like himself, should dream of some day robbing the legitimate property owners of social control, of inflicting one knew not what tyranny upon the world. Curse science! He fumed over the intolerable prospect for some time, and then the pain returned, and he recalled the made-up prescription of the first doctor, still happily in his pocket. He took a dose forthwith.

It calmed and soothed him greatly, and he could sit down in his most comfortable chair beside his library (of phonographic records), and think over the altered aspect of affairs. His indignation passed, his anger and his passion crumbled under the subtle attack of that prescription, pathos became his sole ruler. He stared about him, at his magnificent and voluptuously appointed apartment, at his statuary and discreetly veiled pictures, and all the evidences of a cultivated and elegant wickedness; he touched a stud and the sad pipings of Tristan's shepherd filled the air. His eye wandered from one object to another. They were costly and gross and florid —but they were his. They presented in concrete form his ideals, his conceptions of beauty and desire, his idea of all that is precious in life. And now—he must leave it all like a common man. He was, he felt, a slender and delicate flame, burning out. So must all life flame up and pass, he thought. His eyes filled with tears.

Then it came into his head that he was alone. Nobody cared for him, nobody needed him! at any moment he might begin to hurt vividly. He might even howl. Nobody would mind. According to all the doctors he would have excellent reason for howling in a day or so. It recalled what his spiritual adviser had said of the decline of faith and fidelity, the degeneration of the age. He beheld himself as a pathetic proof of this; he, the subtle, able, important, voluptuous, cynical, complex Bindon, possibly howling, and not one faithful simple creature in all the world to howl in sympathy. Not one faithful simple soul was there—no shepherd to pipe to him! Had all such faithful simple creatures vanished from this harsh and urgent earth? He wondered whether the horrid vulgar crowd that perpetually went about the city could possibly know what he thought of them. If they did he felt sure *some* would try to earn a better opinion. Surely the world went from bad to worse. It was becoming impossible for Bindons. Perhaps some day . . . He was quite sure that the one thing he had needed in life was sympathy. For a time he regretted that he left no sonnets—no enigmatical pictures or something of that sort behind him, to carry on his being, until at last the sympathetic mind should come . . .

IT seemed incredible to him that this that came was extinction. Yet his sympathetic spiritual guide was in this matter annoyingly figurative and vague. Curse science! It had undermined all faith—all hope. To go out, to vanish from theatre and street, from office and dining-place, from the dear eyes of womankind. And not to be missed! On the whole to leave the world happier!

He reflected that he had never worn his heart upon his sleeve. Had he after all been *too* unsympathetic? Few people could suspect how subtly profound he really was beneath the mask of that cynical gaiety of his. They would not understand the loss they had suffered. Elizabeth, for example, had not suspected. . . .

He had reserved that. His thoughts having come to Elizabeth gravitated about her for some time. How *little* Elizabeth understood him!

That thought became intolerable. Before all other things he must set that right. He realized that there was still something for him to do in life, his struggle against Elizabeth was even yet not over. He could

never overcome her now, as he had hoped and prayed. But he might still impress her!

From that idea he expanded. He might impress her profoundly—he might impress her so that she should for evermore regret her treatment of him. The thing that she must realize before everything else was his magnanimity. His magnanimity! Yes! he had loved her with amazing greatness of heart. He had not seen it so clearly before—but of course he was going to leave her all his property. He saw it instantly, as a thing determined and inevitable. She would think how good he was, how spaciously generous; surrounded by all that makes life tolerable from his hand, she would recall with infinite regret her scorn and coldness. And when she sought expression for that regret, she would find that occasion gone forever, she should be met by a locked door, by a disdainful stillness, by a white dead face. He closed his eyes and remained for a space imagining himself that white dead face.

From that he passed to other aspects of the matter, but his determination was assured. He meditated elaborately before he took action, for the drug he had taken inclined him to a lethargic and dignified melancholy. In certain respects he modified details. If he left all his property to Elizabeth it would include the voluptuously appointed room he occupied, and for many reasons he did not care to leave that to her. On the other hand, it had to be left to some one. In his clogged condition this worried him extremely.

In the end he decided to leave it to the sympathetic exponent of the fashionable religious cult, whose conversation had been so pleasing in the past. "*He* will understand," said Bindon with a sentimental sigh. "He knows what Evil means—he understands something of the Stupendous Fascination of the Sphinx of Sin. Yes—he will understand." By that phrase it was that Bindon was pleased to dignify certain unhealthy and undignified departures from sane conduct to which a misguided vanity and an ill-controlled curiosity had led him. He sat for a space, thinking how very Hellenic and Italian and Neronic, and all those things, he had been. Even now—might one not try a sonnet? A penetrating voice to echo down the ages, sensuous, sinister, and sad. For a space he forgot Elizabeth. In the course of half an hour he spoiled three phonographic coils, got a headache, took a second dose to calm himself, and reverted to magnanimity and his former design.

At last he faced the unpalatable problem of Denton. It needed all his newborn magnanimity before he could swallow the thought of Denton; but at last this greatly misunderstood man, assisted by his sedative and the near approach of death, effected even that. If he was at all exclusive about Denton, if he should display the slightest distrust, if he attempted any specific exclusion of that young man, she might—*misunderstand*. Yes—she should have her Denton still. His magnanimity must go even to that. He tried to think only of Elizabeth in the matter.

He rose with a sigh, and limped across to the telephonic apparatus that communicated with his solicitor. In ten minutes a will duly attested and with its proper thumb-mark signature lay in the solicitor's office three miles away. And then for a space Bindon sat very still.

Suddenly he started out of a vague reverie and pressed an investigatory hand to his side.

Then he jumped eagerly to his feet and rushed to the telephone. The Euthanasia Company had rarely been called by a client in a greater hurry.

SO it came at last that Denton and his Elizabeth, against all hope, returned unseparated from the labor servitude to which they had fallen. Elizabeth came out from her cramped subterranean den of metal-beaters and all the sordid circumstances of blue canvas, as one comes out of a nightmare. Back towards the sunlight their fortune took them; once the bequest was known to them, the bare thought of another day's hammering became intolerable. They went up long lifts and stairs to levels that they had not seen since the days of their disaster. At first she was full of this sensation of escape; even to think of the underways was intolerable; only after many months could she begin to recall with sympathy the faded women who were still below there, murmuring scandals and reminiscences and folly, and tapping away their lives.

Her choice of the apartments they presently took expressed the vehemence of her release. They were rooms upon the very verge of the city; they had a roof space and a balcony upon the city wall, wide open to the sun and wind, the country and the sky.

And in that balcony comes the last scene in this story. It was a summer sunsetting, and the hills of Surrey were very blue and clear. Denton leaned upon the balcony regarding them, and Elizabeth sat by his side. Very wide and spacious was the view, for their balcony hung five hundred feet above the ancient level of the ground. The oblongs of the Food Company, broken here and there by the ruins—grotesque little holes and sheds—of the ancient suburbs, and intersected by shining streams of sewage, passed at last into a remote diapering at the foot of the distant hills. There once had been the squatting-place of the children of Uya. On those further slopes gaunt machines of unknown import worked slackly at the end of their spell, and the hill crest was set with stagnant wind vanes. Along the great south road the Labor Company's field workers, in huge wheeled mechanical vehicles, were hurrying back to their meals, their last spell finished. And through the air a dozen little private aeropiles sailed down towards the city. Familiar scene as it was to the eyes of Denton and Elizabeth, it would have filled the minds of their ancestors with incredulous amazement. Denton's thoughts fluttered towards the future in a vain attempt at what that scene might be in another two hundred years, and, recoiling, turned towards the past.

He shared something of the growing knowledge of the time; he could picture the quaint smoke-grimed Victorian city with its narrow little roads of beaten earth, its wide common-land, ill-organized, ill-built suburbs, and irregular enclosures; the old countryside of the Stuart times, with its little villages and its petty London; the England of the monasteries, the far older England of the Roman dominion, and then before that

a wild country with here and there the huts of some warring tribe. These huts must have come and gone and come again through a space of years that made the Roman camp and villa seem but yesterday; and before those years, before even the huts, there had been men in the valley. Even then—so recent had it all been when one judged it by the standards of geological time—this valley had been here; and those hills yonder, higher, perhaps, and snow-tipped, had still been yonder hills, and the Thames had flowed down from the Cotswolds to the sea. But the men had been but the shapes of men, creatures of darkness and ignorance, victims of beasts and floods, storms and pestilence and incessant hunger. They had held a precarious foothold amidst bears and lions and all the monstrous violence of the past. Already some at least of these enemies were overcome. . . .

For a time Denton pursued the thoughts of this spacious vision, trying in obedience to his instinct to find his place and proportion in the scheme.

"It has been chance," he said, "it has been luck. We have come through. It happens we have come through. Not by any strength of our own. . . .

"And yet . . . No. I don't know."

He was silent for a long time before he spoke again.

"After all—there is a long time yet. There have scarcely been men for twenty thousand years—and there has been life for twenty millions. And what are generations? What are generations? It is enormous, and we are so little. Yet we know we feel. We are not dumb atoms, we are part of it—part of it—to the limits of our strength and will. Even to die is part of it. Whether we die or live, we are in the making. . . .

"As time goes on—*perhaps*—men will be wiser. . . . Wiser . . .

"Will they ever understand?"

He became silent again. Elizabeth said nothing to these things, but she regarded his dreaming face with infinite affection. Her mind was not very active that evening. A great contentment possessed her. After a time she laid a gentle hand on his beside her. He fondled it softly, still looking out upon the spacious gold-woven view. So they sat as the sun went down. Until presently Elizabeth shivered.

Denton recalled himself abruptly from these spacious issues of his leisure, and went in to fetch her a shawl.

THE END

OUR LITTLE NEIGHBOR

O Moon, though backed with keenest cold,
You show a brilliant face,
And raise the tide to brake our ride
Through planetary space.
Subdued your shadowed morning plains,
And tense your glare of noon,
When Tycho shines with radiant lines,
The marvel of the moon

Your glowing summits tower above
A slowly dying night,
And sheer and grand your ranges stand
Where afternoon is bright.
From terraced walls and rugged rims
Of mammoth mountain rings,
From ridge and streak, from cone and peak,
A mellow splendor springs.

Yet neither flower nor fragrance haunts
Your dark and empty seas;
No sound or bird is ever heard,
Or gentle evening breeze.
Your cliffs impend, your chasms yawn,
But joy forsook you soon;
What life it left is nearly death,
O sad and lonely moon.

—*By Leland S. Copeland.*

BARON MÜNCHHAUSEN'S SCIENTIFIC ADVENTURES

by Hugo Gernsback

7. Münchhausen is Taught "Martian"

PUNCTUALLY, as always, at exactly 11 P. M. the next evening, Münchhausen's dear old voice once more sounded in my receivers. There was the usual preliminary talk, after which the Baron went on:

"I am very much pleased, my dear Alier, that my Radiotomatic relay station on the Moon works so well. Up to last night neither Flitternix nor I were sure we could bridge the 60 million miles between Mars and the Moon by wireless, but by means of our wonderful ultra sensitive radio-active detector, we were enabled to 'listen in' successfully. When I had finished talking last night, it was about 9 P. M., your terrestrial time. We got our receiving instruments ready at once and a little over five minutes after 11 P. M.* *I could hear myself talking.* The message which I had sent a few hours before had been faithfully recorded on the telegraphone wire of my Radiotomatic on the Moon, and as soon as the automatic clock released the sending machinery, the vibrations carrying my voice were hurled back to us over a distance of 60 million miles. Then we knew that you must have heard the message too, for you are only 238,000 miles distant from the Moon. While my 'canned' voice undoubtedly must have sounded uncanny to you—excuse the pun—I assure you that it gave me the creeps listening to my own voice, flung 60 million miles through the ether!

ONE of the greatest puzzles our astronomers and scientists had to contend with during the last decade was the problem of how water is moved in the Martian "Canals." Nearly all scientists of note who have studied them do not question their existence, but they are all at odds as to what agency moves such enormous quantities of water. It is singular that most of them suggest a form of pump to move the water in the canals, as our present-day knowledge of science and mechanics leaves them no other choice. But what makes our rivers flow on earth? What agency condenses billions of tons of ocean water and brings these waters down in the form of rains, which keep our rivers from drying up? The Sun, of course. Why can't the Sun move the water in the Martian Canals also? This installment contains a new idea as to how the Martians might accomplish it.

"But to come back to where I broke off last night: I told you how several Martians had approached us and had placed a soft metallic cap on our heads. I also told you how we then followed the august Martian into the church-like structure

"While we walked over the hard metallic-appearing walk, which conducted us to the structure, we became conscious of strange flashes in our brains. We also caught distinct, though faint, bars of a soft music, which was followed by weird pictures flashing through our minds. All this took place within our heads, and as I closed my eyes for a few seconds to test myself, the music as well as the picture flashes persisted; I knew then that I did not hear the music with my ears, nor see the pictures with my eyes. I reasoned correctly that both had their origin within my brain.

"Before I had time to puzzle it out, we had entered the structure at the heels of our host. We passed through a magnificent archway, constructed entirely of some transparent material, decorated in superb taste in green, white and gold. One thing struck us immediately; the hallway appeared as light as day, but we could not see where the light originated. Later, we were to find out about this.

"At the end of the hallway was a ponderous massive panel with a door-like appearance. It must have been at least 125 feet high and 30 feet wide. It looked very much like cut glass with all its prisms and fancy cuts; we first thought it was glass, but when we came closer to it we changed our minds, for we saw that the huge thing was as flexible as a velvet portière. When our host was but 10 feet away from it, it suddenly blazed forth in a brilliant golden light which seemed to come from nowhere. Simultaneously the huge door, for this is what it was, rose quickly up in the air just like a theater curtain. Our host now entered into a large circular salon-like room, followed reluctantly by us.

"I say reluctantly advisedly. I have absolutely no words to do the thing justice. Our state of mind upon entering that room was probably the same as if you had brought back to life Julius Caesar of the year 50 B.C., and had suddenly transplanted him some night to blazing Broadway in New York. His mind would have reeled at the—to him—marvelous sights. It would have taken him days and days of asking questions and explanations of all the impossible things he saw before him.

"Exactly so with us. Only Caesar would have made a jump of only 1,978 years, whereas, we made a jump of over 200,000 years. We were merely uncomprehending children, and our eyes and senses were absolutely inadequate to do justice at once to the higher plane of civilization on which we had been thrown so

*As radio waves travel at the speed of light, i.e., 186,000 miles a second, it took over 5 minutes for the radio impulses to reach Mars. Münchhausen therefore heard his talk 5 minutes later than Alier.

We could not rid ourselves of the idea that these females were some sort of secretaries to our host, and it was manifest that they were "working" at something. They appeared to be working earnestly and diligently, too, but there were no pencils, no books, no paper, no typewriters, in fact, there was nothing whatsoever that a terrestrial secretary requires to get up her superior's report

suddenly. We have been on Mars eight days now and still we know practically nothing of this most miraculous world. Every day brings more tremendous surprises and at night we are usually exhausted from all the excitement of the continuous bombardment of our brains by new and wondrous things.

"But to come back to the wondrous salon of our host, who, as we found out later, was the reigning Ruler of the Planet Mars. The house in which we were was a sort of executive mansion or palace, and the room in which we were standing was what you might call the Ruler's office.

"Here I must stop again to advise you that it is extremely difficult for me to explain in existing terrestrial terms what we see, hear and feel, for everything on Mars is so totally different from what we are accustomed to on Earth, that my best comparisons with terrestrial things must of necessity fall far short of actual conditions on Mars.

However, I will do my best to convey a true picture to you.

"The thing that struck us with the greatest force at first was that *everything* in this immense room appeared transparent. The room, which is about 150 feet in diameter, is about 60 feet high, with an immense golden transparent cupola forming the ceiling. The tables, the chairs, all the furniture, as well as all the objects for which we had no names, seemed transparent. Even the walls seemed transparent, as well as the soft, rug like carpets on which we walked. But the wonder was centered not solely in the transparency of the strange material, but in the fact that it gave forth a soft, white light. Imagine a solid chair of glass, glowing in a mellow, white light—not a brilliant light—and you have a good idea of what we beheld. It struck us at once that this wonderful material could be treated at will by the Martians; for, the luminous rugs on which we stood were soft as velvet, while a desk-like object nearby seemed hard as steel. The next thing which attracted most of our attention were the luminous walls. They were all paneled in a curious manner, and, were, of course, transparent and luminous. Each panel had a vast amount of small hexagonal plate-like facets arranged somewhat in honeycomb fashion. These hexagonal cells were constantly changing in soft colors, and the most unique, as well as pleasing, geometrical designs in colors were thus unendingly produced. It was a fascinating sight, and we found it hard to take our eyes from these walls.

"At the far end of the room we noticed four Martians whom we recognized at once as females on account of their mass of hair and their more delicate features. Their heads seemed somewhat smaller than those of the males, but they appeared to dress exactly like the men, except that the color of their metallic looking dresses was of a much lighter shade. But it was not so much the 'girls' that drew our attention as what they were doing. We could not rid ourselves of the idea that these females were some sort of secretaries to our host, and it was manifest that they were 'working' at something. They appeared to be working earnestly and diligently, too, but there were no pencils, no books, no paper, no typewriters; in fact, there was nothing whatsoever that a terrestrial secretary requires to get up her superior's reports.

"Each girl sat motionless in front of a small glass-like table which was entirely bare and flat, except for the center, from which projected two small glass-like rods, each about 4 inches high and as thick as a pencil. At the top they bent over and formed a gooseneck pointing in the direction of the girls. The rods were both pointed at their ends, and while one appeared luminous, the other seemed dark.

"The 'operators' were watching the point of the luminous rod intently, and the expression of their faces indicated that they were reading something. Every once in a while they seemed to relax and at that moment *a curious white ray seemed to pass from the light point of the rod into the point of the dark one.* That was all we could see.

"While we were still wondering our host motioned us to sit down on the comfortable looking arm chairs. These chairs, as already mentioned, appeared like transparent glass, but when we put our hands on them they felt like satin and not at all hard or cold. The transparent seats, which had a moment before appeared as glass, were soft and flexible as an air-cushion and extremely comfortable. The only trouble with the chairs was that they were too big for us. Built for large 8-foot Martians, our feet hardly reached the floor, so we sat in the chairs just as children sit in big armchairs —our backs resting against the inside back of the chair and our legs and feet projecting straight out on the seat; Only then were we quite comfortable.

"This position, ridiculous as it doubtless was, evoked a faint smile from our host, who sat down in his own chair in front of a large piece of furniture that was a cross between a rectangular table and a flat-top desk, garnished in its center with a huge birthday-cake-like affair with 10 transparent and 10 dark glass-like candles, curved in gooseneck form.

"Our host then turned to us and looked us over long and earnestly. His large, liquid blue eyes were wonderful in their depth; in them shone a wisdom such as we had never before beheld. His face had a very benevolent expression, and the features were clear and sharply defined. He appeared tremendously intellectual, yet will-power and strength of character radiated from his face in an amazing manner. We thought that at last he was going to speak to us, but instead he motioned to us to close our eyes, which we did. The following then happened and I will describe it as well as I can. No sooner had I closed my eyes than a clear picture of the Earth with its continents was flashed in my mind, just as if I had tried to think intently of the terrestrial globe, as it stands silhouetted against a dark sky. Then in quick succession followed our 'Interstellar,' the Planet Mars, a picture of our capture by the Martians with their yellow rays and their floating fortresses, then an exact picture of how we appeared at our landing on Mars.

"It then dawned on us that our host was 'talking' to us, not in words and not in a strange language, but motion-picture-wise. *We had experienced the first transference of thoughts,* and had understood everything our host had 'said,' because he thought in pictures which

were perfectly familiar to us, not in words which would have had no meaning for us! When there was a lull, we opened our eyes in astonishment and blinked bewildered into the smiling eyes of our august host. He seemed highly amused at our amazement and once more he motioned to us to close our eyes.

"For the next hour or more we had our first lesson in 'Martian.' In easy stages our host first flashed simple pictures into our minds, which were then followed by scenes with various actions and explanations just as in a moving picture scene, where the mind must infer what the actors are saying to each other by the expression of their faces and their obvious actions

"There was a short pause, after which our host launched into the 'Evolution of Mars.' We were first shown how the planet, millions of years ago, was but a nebula floating in space and how the nebula slowly became a solid sphere. The early life of Mars was then pictured, which must have been exactly like the evolution of our own Earth. We saw the prehistorical Martians with their clubs and stones. then we saw for a long period the slow evolution of Mars down through the ages till a civilization similar to that of present terrestrial conditions was reached. There were the wars, the barbarism and the thousand other evils exactly as those experienced by man on Earth. Evolution, after all, is the same throughout the Universe, given like conditions.

"As the story of the evolution went on we could see how the Martian's small head and his small chest both kept on increasing with each subsequent generation. We were shown how big oceans and inland seas, as well as vast rivers, dried up gradually, and how the whole population turned into mechanics, electricians and chemists. No true happiness and contentment, however, seemed to exist on Mars until thought transference was established, till gravity was conquered and money was abolished. There had been wars and disorders up to that period, but it seems that these three achievements, apparently invented and originated at about the same time, emancipated the race completely. As we found out later, this period was reached some 14,600 years ago.

"Beginning with that period only did the Martians really become great. We saw how in less than five generations speech had been entirely abolished, it being possible to 'converse' over considerable distance by thought transference. We were shown the evils of too many languages and the race hatreds produced thereby, and how finally one universal language was adopted by all races and nations. We saw the abolition of presidents and rules of small and big nations, and the inauguration of a Universal Council and a Planet Ruler, both elected by popular votes.

"We witnessed how the once dense air became thinner and thinner and how fertile valleys turned into deserts on account of lack of water. We saw the transmutation of the metals, as well as the transmutation of all other matter. Thus we were shown how iron or lead was turned into gold or copper, or into any other metal. Or else how marbel or stone was turned into steel or gold or other metals, the same as clay can already be turned into aluminum on Earth to-day.

"Simultaneously with these discoveries, we witnessed the unlocking of atomic forces, which was the last great Martian discovery in the final mastery of the Planet.

"Where extermination had stared the Martians in the face on account of their constantly decreasing water supply, the new atomic engines, combined with the conquering of gravity, dispelled all fears for the future. During the next few generations we were made to see the creation of the monstrous waterways which not alone were to bring water from the two poles, but also were to irrigate existing agricultural districts as well as barren deserts. We saw how the Martians finally harnessed the Sun and how the latter was now moving the waters in the vast waterways, which you know as 'canals.'

"In quick succession we were then shown all the progress and evolution on Mars during the last thousand years. I do not attempt to go into details here, as you would surely not grasp the meaning. Neither do I attempt at this time to explain all the wonders that took place on Mars during the past 10,000 years, because you would not understand most of it, precisely as we did not grasp everything during our first 'lecture.' It therefore becomes necessary to explain the wonders to you by means of examples and comparisons with existing terrestrial terms. This I will do during our stay on this Planet.

"After our host had concluded his first 'lecture' he watched our utter amazement with the benevolent smile a fond mother will bestow on her four-year-old child, after she had finished telling him a particularly interesting fairy story.

"After a short time we could understand him quite well by his motions as well as by mere picture talk without closing our eyes. He then made us understand that he desired us to transfer our thoughts to him. We tried the experiment, Flitternix first. He failed utterly, for our host shook his head smilingly. Then I tried it. But as the metallic-like cap, which one of the Martians had placed on my head, made me too warm, I foolishly proceeded to take it off. Of course our host smilingly made me put it back again, and only then did I remember that he had shown us during our lecture that thought transference was impossible without the medium of the complex 'cap,' which I shall later describe to you.

"I then proceeded to concentrate my mind and began thinking real hard of Flitternix and how he appeared just then. For some seconds I did not seem to be successful, for our host looked blank. Finally, with the perspiration running down my forehead from the unaccustomed effort, the Ruler's face lit up and he pointed smilingly at Flitternix! I was much elated over this success, *my first transmission of thoughts,* or rather *one* thought! For a few minutes our host tried to make us understand that it would take some days of practise before we could hope to 'talk' even by pictures, and perhaps months before we could begin to actually 'talk' in words without using our tongues or ears. He then recommended that Flitternix and myself should practise as much as possible and should forget speech entirely. He also cautioned us that as all thought-trans

mission took place through the medium of electricity, it was necessary that the flexible metallic cord hanging from our metallic-like caps should touch some conductor, preferably the ground. As we could easily guess that this was necessary in order to provide a return circuit for the currents, we soon learned how to keep in contact with a conductor, when we wanted to transfer our thoughts from one to the other.

"As our host had to go to the other end of the room just then, Flitternix and I tried thought transmission at once. We surprised ourselves by our success. Not only could we 'talk' in pictures after a while, but almost at once we were able to enunciate whole sentences. Of course, the unusual strain gave us a headache long before our host returned; but that was to be expected; we had never been used to such hard mental work, and we understood quickly that we would have to learn the art gradually by constant slow practise and by frequently resting the brain.

"As if our august host had divined the strain on our minds during the past hour and a half, he immediately began to divert us, and he did this admirably by letting us see for ourselves with our eyes, instead of with our minds.

"However, we quickly began to understand and appreciate his wisdom in first giving us his historic lecture, because if he had not done this most of the things we saw during the next hour would have been meaningless to us. Thus you will understand that what I am going to tell you now, including the explanations, did not originate entirely in my own mind. Most of my explanations are, naturally, based upon that important lecture.

"We followed our host outdoors, where we boarded his private flyer. This machine was, of course, an anti-gravitational flyer, propelled by atomic engines. It behaved much like our own *'Interstellar,'* that is, it had no wings, nor planes, because it was not dependent upon the air. The gravitational attraction of Mars is neutralized by the atomic engine to a certain degree. The more the gravity is neutralized the higher the machine rises. Now, in order to steer the flyer, an *Emanation Ray* is used. This ray is the joint product of several elements not known on Earth; the nearest, although a poor analogy, is found in your radium emanation, but the latter is several million times weaker than the Martian Emanation Ray. This ray is projected into space by means of electricity and another source of energy, which I shall term *ION*, as yet unknown on Earth, and to be described by me later. The Emanation Ray can be stored just as electricity is stored in a storage battery. When it strikes an immovable object it acts exactly as an oar does when it is used in 'pushing off' from the dock, i.e., the boat will move away from land. So the Emanation Ray is used in controlling the horizontal motion of the gravity-neutralized flyer, and by its means, the latter can be guided in any desired direction.

"Our flyer was round in shape, resembling a disc, and measured about 25 feet in diameter. It was almost 6 feet thick, and like most other things we had seen on Mars, it was transparent. In the center was a dome that looked like the conning tower of a submarine, and a slender metallic pole extended from it almost 25 feet into the air. It branched out at the top into three short brackets, at the end of each was a transparent ball about 10 inches in diameter. Between these balls the Emanation Ray played, and the latter could be thrown at will into any direction desired.

"Our flyer was an open one and not covered on top, and there were two 'drivers'—which you probably would call chauffeurs—one forward and one aft. There were no steering wheels and no brakes, nor was there a horn. The two drivers sat in transparent chairs, not unlike our own, and in front of them was a little round table with small key levers like 'listening in' keys on an American telephone switchboard. That was all.

"As soon as we were seated, our host sitting between us, our 'drivers' pressed a lever or two, and we shot upward with amazing speed. In a few seconds the Emanation Ray went into action, and we began to fly or rather float in an easterly direction. From the position of the sun, I concluded that it was almost 'noon,' as the sun was about overhead; this must have been in Flitternix's mind too, for presently he set his chronometer to noon, which, of course, was a ridiculous thing to do, for we did not know if the Martians divided their day into 24 hours or into 100 hours.

"We were now floating some 1,500 feet up over what we afterwards learned was the Martian National Capital, the 'city' of the Ruler. It is located in the elliptical spot which terrestrial astronomers have marked as *'Solis Lacus'* on their Martian maps.*

"As if our host had divined our innermost wishes, we soon passed over the capital and approached the waterway which you will find in your Martian map under the name of *'Nectar.'*

"The Martian Canals! At last we beheld one of them at a distance of less than 2,000 feet! The riddle of terrestrial astronomers for over a century! The cause of one of the most heated controversies on Earth! And now we saw them close by with our own eyes!

"The 'Canal' proper, which is termed 'Nectar' by astronomers on Earth, is about 6 miles wide. It runs in a perfectly straight line for over 500 miles and is about 20 feet deep. Like all other Martian waterways, it is lined with the Universal Martian material termed *TOS*, which looks like glass, yet is not glass. The *tos* in this instance is waterproof, is an electrical conductor on one side and an insulator on the other. Yet it is a solid body and much harder and tougher than steel. The conducting side is turned toward the water, and when a certain current of *ion* is sent through the *tos*, the water near it loses all weight because the gravitational attraction of Mars is neutralized thereby. It is now an easy matter to move the tremendous masses of water, a problem which your earthly scientists could never solve.

"At each bank of the vast waterway, we saw immense towers about 2,000 feet high. These towers are spaced about 5 miles apart and follow the entire course of every canal. Their purpose is as follows:

"At the top of each tower is an immense 'pyramid,'

* See accompanying map of Mars. Solis Lacus is located at about 30° latitude and 90° longitude. Nectar runs from the eastern (left) edge of Solia Lacus, due east. See page 155.

made of a certain variety of *tos*. The sides of these pyramids are formed of thousands of small black cells, which, when exposed to the Sun's rays, absorb the heat of the latter. As the surface of these pyramids is very large, a proportionally large amount of heat is received. This heat is directly transformed into *ion* and stored within the pyramid. The latter turns on its axis, so as to present the largest possible surface to the Sun from sunrise until sunset; also as more power is generated than is needed during the daytime, the excess is used during the night.

"Now, then, from the top of the pyramid a gigantic Emanation Ray bursts forth, fed from the stored *ion*, originally secured from the Sun's heat.

"This ray is made to fall over the entire width of the waterway, and it is directed on the latter at an angle. The ray striking the water, which because it has no weight, does not resist, must naturally move away from the direction of the ray. This it does, the Emanation Ray 'pushing' the water at a rate of about 2¼ miles an hour. If it were not for the ray, the water would, of course, be entirely motionless, for the Martian waterways are exactly level.

"As each tower assists in moving the water over a certain distance, the water gradually acquires momentum and flows slowly but steadily. Before the momentum has been expended, the next tower is reached, which pushes the water on to the next one, and so on through the entire length of the Canal. You will naturally understand that these towers must work nights as well as during the day, else the water would not flow during the night. The stored surplus power during the day makes this possible. Furthermore, the towers work to their full efficiency and uninterruptedly year in and year out, for there are few clouds to hide the Sun on Mars, as is well known; consequently, the pyramids are hardly ever without power, except nights.

"You realize that all the towers must throw their rays in the same direction, which, of course, they do; thus, if the water is to be moved in one season from North to South, the rays face the South. During the next season, when the flow of the water must needs be reversed, as explained to you yesterday, the Emanation Rays will all point northward. Thus one of the great problems on Mars has been solved. But what does the work? The all dominating Sun.

"And what moves the waters on Earth? What condenses the waters from the oceans and lifts up myriads of tons of water year in and year out, to form clouds, which later produce the rains, without which your rivers would run dry within four weeks? The Sun, of course!

"Only on Earth the Sun does it in a natural manner; here on Mars, the Sun works to the same effect, but without the intermediary of the clouds."

* * * * *

There was the familiar snapping sound in my receivers, a low click, and everything was quiet. I knew that the telegraphone wire on the Moon must have been filled to capacity, and that I would not hear again from Münchhausen till the next evening.

8. Thought Transmission On Mars

I WAS still dreaming, lost completely in a blue cloud of pipe smoke when my electric chime, controlled by the Western Union clock, which gets the exact time hourly from the Naval Observatory, commenced to sound the eleventh hour in its sonorous, vibrant voice.

At the stroke of eleven—my headset had been already clamped over my ears—the familiar high whistling sound sung in my ears once more. Punctually, as usual, Münchhausen "called."

"Same, good old Münchhausen," I said to myself, and I listened expectantly for that dear, croaking sepulchral voice. However, he had a little surprise for me. He did not speak; instead, without warning, there suddenly broke into my ears the most amazing music a mortal has ever heard. The sound was so loud that I was actually forced to take the 'phones from my head and place them on the table, and I had to go to the far end of my laboratory in order to hear the music at its best.

And to think that I was listening to music which had originated on Mars 60 million miles away! It was almost unbelievable! But there it was, filling up the entire room with the most delightful music. Sometimes it sounded like an immense orchestra, then again like a *celeste* instrument. At other times the music sounded like a 'cello mixed with a flute, immediately to change into a mixture of an oboe and a cornet. Occasionally there was a sound like human singing, but altogether different in quality and volume. Moreover, all sounds were sustained; they never broke off sharply; and the music from one instrument seemed to melt into that of another without the slightest break. Imagine, if you can, that you are listening to a violin which gradually, in a most harmonious manner, changes into a cornet without a break! I had never been stirred so deeply by music in my life, and I have listened to exquisite music in my day.

For five minutes or more I listened, entranced; then the music gradually died down to a plaintive, crying sound which almost brought tears to my eyes. When the "concert" was over I returned to the 'phones and I had hardly adjusted them when Münchhausen spoke: "Good evening, my dear Alier, how is old Mother Earth and yourself to-night? Sorry you can't tell me, at any rate I trust all is well! I hope you enjoyed my little musicale; there has never been *such* music on earth as far as I know. Too bad the telegraphone wire on the moon is so short, otherwise I would have given you a longer program. Anyhow, I am certain you liked my little concert. Of course, now that you have heard the Martian music, you want to know how it is produced. If I were not so far famed for my veracity, I should certainly run the risk of being called something less well sounding than a story teller, but I know you will not question my statements. The indisputable facts are that the music which you just heard was produced

from a solid transparent *tos* rod, about ¼ inch thick and almost 8 feet high. At each end of this rod there is a coil which looks like a big terrestrial magnet coil. It has, however, about 14 distinct and separate windings. The ends of these windings go to a sort of switchboard which has a triple keyboard like an organ, and both coils are connected to this organ-like instrument. By depressing a key, a certain pulsating current is sent through one of the coils. This in turn sets up Eddy currents in the *tos* rod, which, of course, is conductive. These stresses in the rod set up vibrations and cause the rod to swing like a piano string—sound is the result. By using different frequencies, different sounds are produced. When both coils are operated at the same time, interferences take place within the rod, causing the sound to change in its quality. Thus by operating the two coils while changing the current intensity and by using different amplitudes, almost every imaginable as well as unimaginable sound can be obtained. It is thus easy to imitate a cornet or a xylophone in their true musical values. Nor is this all, for the rod can be made to sing and trill, and it can be made to actually speak words; a good player is able to imitate the spoken or the singing voice of any living Martian equally as well as a lifeless, black phonograph disc on earth can be made to sing the most difficult aria.

"Nor does the wonder stop here. By using a sufficient amount of power, the sounds can be intensified to such a degree that music emanating from a *tos* rod can be heard plainly over a distance of 10 miles. Indeed, all outdoor concerts on Mars are given by means of a single *tos* rod. In only one case have I seen two rods operated simultaneously. The effect in this instance was overwhelming; it was like listening to a thousand-man orchestra and to a dozen tenors, all going at one time.*

"But this is not all. You know that if a rod is vibrated at a sufficient frequency, it will sound a certain note. The faster it vibrates the higher the note will be. If we keep on increasing the speed or vibration we finally arrive at a stage where the note is so high that the human ear is no longer capable of hearing it. If we keep on increasing the frequency, a stage is finally reached in which the rod sends out waves that have the velocity of light and electricity—186,000 miles a second. This, of course, is well known to your physicists on earth.

"The Martians make use of just this principle in supplying the music loving people of Mars with wireless concerts. The operation is simple indeed.

"Not far from the equator of the planet, a central music plant is operated by a single Martian, who, of course, is a musical genius. He operates one of the organ-like instruments of which I spoke before. Besides the instrument, the 'plant' comprises *tos* rods, each 20 feet high. These rods work exactly like the ones just described, except that they are operated at an enormous frequency. I have stood in front of them while they were operating so close, in fact, that I could have touched both rods with my hands. However, my ears detected not the slightest sound. Incredible as it seems, millions of Martians, at that minute, were listening to the wonderful music produced by these same rods, *but not with their ears*. They were listening with their brains!

"I told you a few days ago, how, when we first landed on Mars, we had been amazed to 'hear' snatches of a wonderful music inside of our heads. What we had been hearing was the radio music originating from these two *tos* rods some 2,000 miles distant! Of course, radio music is nothing new; the sounds of voices and music have been wafted over thousands of miles on earth already, but your scientists still require huge aerials with which to catch the waves. And these waves are not yet themselves audible to our ears. You are still using a variety of coils, detectors, telephone receivers and what not in order to translate these radio waves into sound waves in order that your ear may hear them.

"Not so on Mars. Every Martian is required, for reasons which you will understand presently, to wear a peculiar soft metallic cap. From the back of the cap, a thin metallic cable runs down the Martian's back and is fastened there to his metallic coat. All Martian clothing, as well as footgear, is invariably of metallic weave. Now, since all pavements and all flooring, carpets and rugs are metallic on Mars, for reasons which will also be apparent to you later, a metallic connection with the 'earth' or 'ground' is always effected.

"The metallic cable of which I just spoke does not make contact with the cap itself, but it is insulated therefrom. It connects, however, with a small reddish metallic plate about the size of an American silver dollar. This plate in turn, by means of a flat spring, presses against the temple of the wearer; the cap holds the plate in place. A similar plate presses against the other temple, but this plate, unlike the other, is connected metallicly to the cap itself. From this description you will gather that the metallic cap performs the function of a radio aerial, while the metallic clothing forms the ground. The two reddish plates pressing against the bare temples are made of two metals unknown on earth, and the metals are distributed over the surface of the plate in honeycomb fashion without touching each other. Now if the two plates are pressed against the temples and when wireless waves are passing through them, the waves are translated into vibrations of a certain frequency. It has been found that if these vibrations reach the conscious sense of hearing which is located in the *temporal lobe* of the brain, sounds can be impressed upon the brain without requiring the ear and its auditory nerve. In other words, the sound is "heard" directly within the brain without the agency of the ear's mechanism.

"If this should be somewhat hazy to you, a homely (though inaccurate) illustration will not be amiss here. At first blush one would think that the ear is absolutely essential for hearing, but this is not the case. Try the following simple experiment: Stop up both your ears as tightly as possible with cotton so that you will not hear a sound from outside. If you are partly deaf—and I trust you are not—all the better for the

* When this was written, radio loud speakers were not known. Recently radio loud speakers have been invented which can throw music and the human voice over a distance of several miles.—*Author.*

experiment. Place a darning needle between your teeth by biting on it hard and take care that your lips do not touch the needle. The needle itself should project about one inch from your mouth. Now operate an ordinary disc phonograph and with care press down upon the record with the needle's point held at the same angle as the reproducer's needle is held ordinarily. Your whole brain will be filled immediately with music, exceedingly loud and clear. Of course, in this case you still hear with your ear's mechanism, the sound vibrations being carried to the eardrum through the bones of the head; but it is interesting to note that if a truly deaf person tries the experiment he will be enabled to 'sense' the sounds, although not perfectly.

if we can find a medium by which it will be possible to detect these waves it will become as simple a matter to transmit the thought waves as any other wave.

"The medium of detecting these 'brain-waves' is found in the Martian temple plates, enormously sensitive to the brain's short wavelengths. But not only do these composite metal temple plates detect the 'brain-waves; they also translate them directly into a longer etheric wavelength, which in turn is shot out into space similar to a radio signal. While these waves are fairly strong, their intensity is not sufficient to carry them over great distances. As a matter of fact, thoughts have only been transmitted on Mars for a distance equal to about 10 terrestrial miles. And even this was

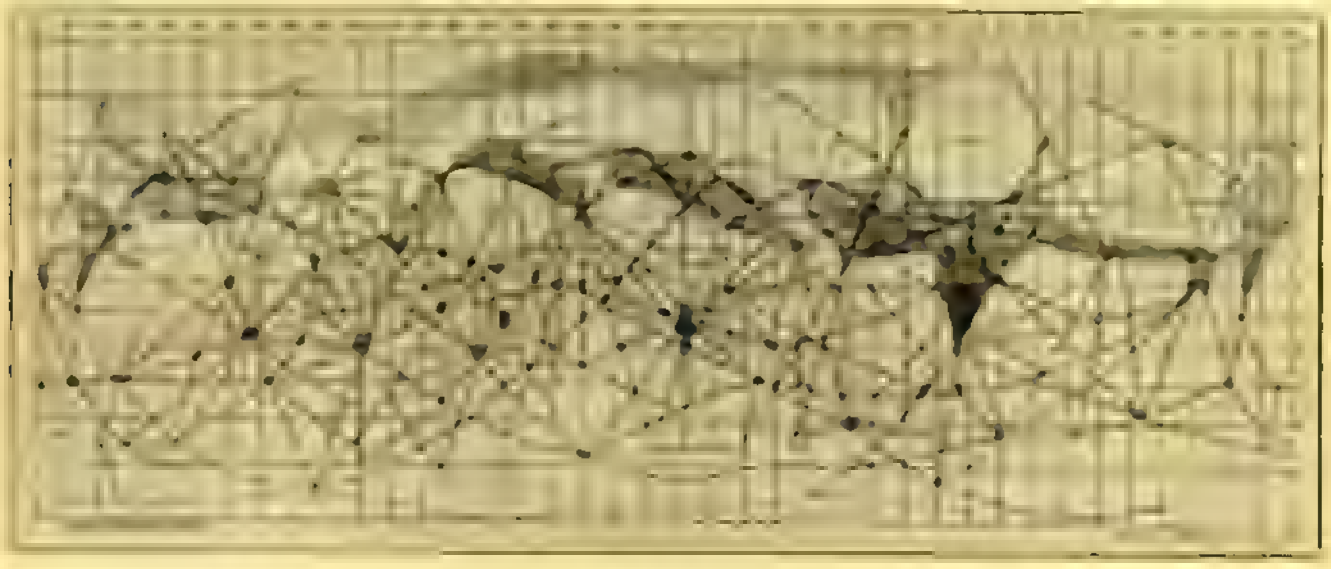


Photo courtesy Prof. Percival Lowell, Lowell Observatory, Flagstaff, Ariz.

The above map shows Mars and its canals in Mercator's projection. As objects appear upside down in the telescope, it should be remembered when studying the above map, that the top is South, the bottom North; East is left, West is right. Note how the majority of the canals run North and South (or South and North), toward the poles, which is necessary in order to convey the water from the melting polar snow caps equatorward. The canals can be plainly seen running over the dark areas, which are therefore not seas, but vast stretches of vegetation. Particular attention is called to the numerous circular dark spots, only to be found at the intersection of two or more canals. These dark spots, termed Oases, are thought to be circular vegetational tracts, containing vast farms, parks, cities, etc.

"Of course, the function of the Martian apparatus is based on an entirely different principle, and the above experiment is only cited by way of comparison.

"It goes without saying that these little red honeycombed plates, pressing against the temples, are wonderfully sensitive to etheric waves; in that they exceed enormously the most sensitive radio detector ever invented by your scientists. But not only do these wonderful temple plates serve to bring distant music to the Martian's brain, but they still have a more important function. The fact was already mentioned to you how we first made our acquaintance with thought transmission and how we found it impossible to transfer thoughts without the caps being on our heads.

"The act of thinking, as we know it and as has been understood on earth for a long time, is merely the action of certain nerves stimulating certain brain centers. The harder we think the stronger the stimulation. This stimulation in turn sets up an undulatory motion in the affected brain cells, with the result that these cells must of necessity vibrate like a piano wire. But anything that vibrates—no matter what the frequency—must set up waves. Thus we come to the conclusion that the act of thinking must set up certain waves. Now

exceptional, extra highly sensitive apparatus being used at the time for the experiments. As a rule the Martians do not project their thoughts over 50 terrestrial yards, as the confusion and clashing of the many waves would otherwise become too great. If a number of Martians are assembled in one room they can converse very nicely by thought transmission without interfering with one another. The Martian, by long training of his brain for generations back, is enabled to 'tune' his mind to a comparative wide range of waves; thus with but little effort he can think in a high "pitch" or in a low one. As each pitch has its own characteristics—no two being alike—it becomes easy for anyone to 'listen' to the selected one only. It is the same as if you converse with your friend while ten other people talk all at one time in the same room. By instinct you are enabled to listen to your friend's characteristic voice, disregarding all the other voices. You 'tune' your ear automatically to his voice, and while the sounds of the ten other voices reach your ear, you do not *consciously* hear them.

"Exactly the same is the case when the Martian converses by thought transmission; his brain 'hears' only that which he actually wishes to hear and nothing else.

Nor can one Martian force his thoughts upon another if the latter does not want to 'listen.' He simply shuts the other out, just as you can shut out your friend's voice if you do not care to listen to him. You 'tune' his voice out by concentrating real hard on a subject, with the result that you are not conscious of what he is talking about. The same is the case with the Martian.

"On the other hand, if the Martian does not want to have anyone 'listen' to his thoughts, he simply pushes the plates away from his temples, when, of course, no thought transmission can take place.

"But, as usual, I get ahead of myself. I believe that I told you last night how we had taken an excursion over the mighty Mars canals with our host, the Planet Ruler, and how we had been shown the machines which move the waters in these miraculous canals. After the inspection our host took us back to the executive palace and once more we were seated in our transparent chairs.

"Our host also resumed his transparent chair in front of his desk, which, as I mentioned yesterday, was flat and transparent, while on top 20 transparent *tos* rods, curved like goosenecks, were mounted in two semi-circles. Our host sitting in front of the desk formed the center of one of the semi-circles, in such a manner that one gooseneck was as far away from him as he was from the other.

"The august ruler hardly sat down when a 10-foot transparent *tos* rod which was mounted on the desk suddenly gave out a pleasant but penetrating chime-like sound. Our host immediately assumed an exceedingly grave manner and motioned us to pay close attention.

"We then witnessed a most astounding procedure.

"The ruler of the Planet Mars placed his finger upon a black button-like contrivance in front of him and instantly the transparent gooseneck *tos* rod in front of the button changed its color and became almost milky white. Simultaneously its upper sharp point began to glow in a bluish white color and a faint discharge, not unlike tobacco smoke, struck our host squarely in the face. This discharge was unlike any electrical high tension phenomenon we had ever witnessed, for it was transparent and it did not make the slightest sound. Moreover, it seemed to constantly undergo changes; for a few seconds the stream would be bluish white, quickly to change to a pinkish color during the next moment. Then again it would appear slightly violet One moment it would spread out, the next it would look like a single beam of light. Altogether it was the most singular, astonishing phenomenon we had ever seen.

"But this was not the most wonderful part, for when our eyes were directed upon our host's face, another surprise awaited us. His expression was continually changing; sometimes he would smile, sometimes he would look very severe. At other times he would nod as if he was giving his approval to something; then again he would sway his head slightly from one side to the other, but at all times while we were watching him we could not rid ourselves of the idea that he was 'reading' something.

"Indeed, as we were to find out later, this was precisely what he was doing. In other words, we were witnessing how *the Ruler of the Planet Mars was 'reading' his morning 'correspondence!'*

"While we were still marveling, the gooseneck stopped its discharge—the ruler had read the first 'letter.'

"We were to see immediately how he answered it. He simply touched a red button in front of the black one, which he had just released, and by his demeanor we did not find it difficult to understand that he was transmitting his thoughts pertaining to the 'letter' just received, to one of his secretaries. He 'dictated' for a few minutes and when he had finished he pressed upon the second black button in front of the second goose neck—he was now 'reading' his second letter.

"For an hour or more he thus attended to his 'correspondence,' never slacking, never resting a minute. Whatever the qualities of a Martian ruler are, it is certain that he must be energetic to the utmost, as well as a quick worker. Of course, we had no inkling of what was going on; we were to learn the details later.

"Briefly they are as follows: The Planet Mars is divided into 10 equal 'zones,' each administered by a 'Zone President.' These ten officials, scattered over the planet at different points, are directly responsible for the welfare of their zone and report to the Planet Ruler once each day at a certain predetermined time.

"As the most vital question on Mars is invariably the supply of water, nine-tenths of the Planet Ruler's 'correspondence' is on this subject. So strenuous is the battle for existence on Mars that the inhabitants of the planet themselves are always considered after the water supply, never before it. If the Zone President's report has been prepared by him, he sits down in front of his desk, similar to the one described, except that it has fewer goosenecks than that of the Ruler. When he presses the red button in front of him his thoughts are immediately transmitted through a cable to the executive capitol and are received by the Planet Ruler. I described a few minutes ago the manner by which the message is received by him. Simultaneously while the Ruler receives his message a record of it is made by one of his secretaries. Connected to the tall *tos* rod on the Ruler's desk, which is used to receive the transmitted thought waves, is a sensitive recording mechanism. This latter is in charge of a secretary and works as follows: A thin metallic ribbon of the thickness of tissue paper unrolls slowly in front of a sharp stylus The thought waves acting upon an amplifying system operate this stylus, which in turn engraves a continuous wave line on the thin metallic ribbon. This wave line is perfectly legible and a Martian can read it as well as you can read an electric ticker tape. Thus incoming as well as outgoing 'correspondence' is always recorded, so it can be readily looked up should occasion arise. Each tape is carefully labeled and stored away in the archives of the capital and, being of metal, it will last practically forever.

"But I note by my chronometer that the time is up and in a few seconds the telegraphone wire on my radiomatic on the moon will be full to capacity. So I must cut off short. *Au revoir*, dear boy, and pleasant dreams till to-morrow. ....."

(To be continued next month)

THE OCTOPUS CYCLE

By IRVIN LESTER and FLETCHER PRATT

(*Concluded*)

He was interrupted by the arrival of an excited Senagalese, who addressed Major Larivet:

"The boat she is smoke. She go."

"How?" "What?" cried the four, leaping to their feet and starting down the road in the direction of the pier.

It was too true. The Morgana, out beyond the reef line, was marked by a tiny plume of smoke from her funnel, and as they gazed, she seemed to move a bit.

"Quick!" shouted Weyl, "let's push off a dhow.

Followed by the Englishman, and at a longer distance by Duperret, he raced for the pier and leaped into the little craft. "Grab a sweep," he called to Larivet.

Propelled by sail and oar, the little craft began to swing out from the pier, and then catching the land breeze in its full strength, heeled over. Duperret drew in his sweep, useless at that speed. He shaded his eyes and looked toward the Morgana. Suddenly he turned with a short bitter laugh.

"Look," he said, pointing. A few hundred yards ahead of the dhow, Weyl and Mulgrave saw a globular grey shape among the waves. From it, lying flush with the water, radiated—tentacles. Weyl put the tiller over to avoid it, and as the craft swung saw another, and then another. It was the end.

But even as he prepared to wear the little ship round and run back for the pier, if indeed they could make that temporary safety, they saw out beyond the loathsome globular head and spreading arms a triangular fin-shape that cut the water with hardly a ripple.

It was charging straight at the octopus, and as they watched, there was a swift turmoil in the water, the flash of a sleek, wet, black body, a vision of dazzling teeth, and the globular head of the octopus disappeared into a boil of water from which rose two tentacles, waving vainly. Off to the right, another of those knife-like fins was coming, followed by more—a half-dozen, a dozen, a score; and suddenly around each of them there gathered the whirl and flush of a combat.

The dhow drew ahead, right toward the center of one of those tumultuous whirlpools. Out of it dissolved an octopus that was only half an octopus, its tentacles torn and a huge gash across that inhuman parody of a face—an octopus that was striving vainly to escape from a flashing fate that ran behind it.

Weyl shouted—Duperret began to weep; the unaffected tears of joy of the emotional Frenchman and Mulgrave, stirred from his imperturbability, was shouting, "Killer whales!" to an audience that had eyes and ears only for the savage battles all about them.

Everywhere, they could see through the clear tropical water that the killers, stronger and swifter, if less intelligent, were the victors. The octopuses, routed, were trying to get away—as vainly as the natives had tried to escape from them.

"Let the bally yacht go," shouted Mulgrave to Weyl. "I want to enjoy this."

For fifteen, twenty minutes, they watched, until they saw the vanishing fin of a killer moving off to northward, signal that that part of the battle was over, and that the killers were departing for new fields of triumph. Three men, with hearts lighter than they had known them for weeks, manoeuvred the boat back to the pier.

CHAPTER X

THEY seem to be gone, sure enough," said Weyl, tossing down on the table a brace of the native pheasants. It was only two days later, but he had returned from a four hours' trip into the jungle.

"I didn't even come across the traces of a single one of them—unless you can call a trace the fact that they seem to have cleaned out about all the animals in this district. Even the monkeys are gone."

"Do you think they will come back?" asked Major Larivet.

"I am sure they will not," said Weyl. "There seem to be perfect shoals of killer whales off the coast, attracted no doubt by the octopuses, which are their favorite food. You may be sure they would hunt down every one, as the killers are very voracious."

"But what made them appear in the first place?"

"God knows. It is, or was, since they are now gone, some phenomenon allied to that which produces the lemming migrations every twenty-eight years. You, Mulgrave, are a biologist. You know how, once in twenty-eight years, these little rat-like animals breed in such numbers that they overrun whole districts, and then migrate into the ocean where they are drowned by the thousand.

"These octopuses would have plenty of opportunity to develop their extraordinary size and intelligence, as well as their quality of breathing air by life in the shallow, deserted lagoons all around Madagascar, and if they were actuated by a life-cycle similar to that of the lemmings, they would breed in the vast numbers which we saw. It seems the only logical hypothesis.

"In any case, there is nothing for the rest of the world to fear. A sort of wireless telegraphy seems to exist among animals with regard to neighborhoods where food can be obtained in quantities, and just as you will see the condors of the Andes flock to where food is, the killer whales gathered around this visitation of giant cuttle fish.

"It is one of Nature's numerous provisions to right the balance of things on the earth when they threaten to get out of joint in any direction. If any other enemy of man were to multiply as these octopuses did, you may be sure he would find an animal ally.

"We were merely panic-stricken and foolish to think we could accomplish anything. We should have waited."

"And now, my friend," said Duperret, "I suppose I must bid you farewell."

"Yes. I am anxious to get back to my monograph on the Ammonites of the Upper Cretaceous. It will astonish the scientific world, I think."

THE END

The MASTER ANTS

by Francis Flagg

Author of "The Machine Man of Ardathia."

A Strange Disappearance

"THE thing is a hoax."

"Palpably a hoax."

"And yet the handwriting is theirs."

"Or a forgery."

"A clever forgery then. Schultz is a handwriting expert, you know, and he declares the signatures to be genuine."

"But the thing is incredible."

The two men looked at each other helplessly. One was a Doctor of Science; the other a nationally-known criminal lawyer. Several days before, a strange thing had happened. The nationally-known lawyer had been dining with his family in his home on Tanglewood Road, Berkeley, California, when what was at first taken to be an infernal machine of some sort dropped in the midst of the dinner table with a crash, upsetting the table and narrowly missing injuring the diners with its flying wreckage. Yet, as it was the rainy season and the evening was damp and raw, no windows had been open; nor did investigation show any of the panes or sashes to have been broken, as would have been the case had the machine been hurled through them. In short, save for some spatters of food and a few dents in the walls made by the flying metal, the room was intact. Only one door had been open at the time, the door leading into the kitchen; and the kitchen had been occupied by the cook, a middle-aged lady who had been in the employ of the lawyer for five years. Seemingly, the infernal contraption had materialized out of thin air. As if this were not startling enough, there was the manuscript.

"I found it," said the lawyer, "in the midst of the wreckage."

The third member of the party, an ordinary practising M.D., examined the manuscript with curiosity. It had evidently been tightly rolled and was yellow, as if with age.

"You say," he said, "that this purports to be a message from two men who dropped out of existence some twelve months ago. As I am only visiting in the East Bay for a few weeks, I am not acquainted with the facts of their disappearance. If it wouldn't be too much trouble . . ."

"Not at all," replied the Doctor of Science. "John Reubens was a fellow professor of mine at the University and held the chair of Physics. Raymond Bent was a student, working his way through college by doing secretarial work for him. Reubens was a man of about forty-odd, well-known in scientific circles as a brilliant, if somewhat eccentric, physicist. In fact, he had studied under, and once collaborated with, Jacques Loeb, before the death of that great mechanist. He lived with his widowed sister in a large, old-fashioned house on Panoramic Way, and had a splendidly equipped laboratory there in which he carried out strange experiments of his own. I will frankly confess that while we acknowledged him to be a brilliant man in some respects, the majority of other professors thought him a nut because of wild theories he was wont to voice in relation to time. On the other hand, he made no secret of regarding us as so many 'Dumb Doras' without vision enough to see beyond the tips of our noses. That's the best picture I can give you of the man who went into his laboratory with his secretary on the 14th of October, 1926, and never came out again! But let his sister give you her version of the affair. I clipped this interview with her out of the *San Francisco Examiner* and saved it."

The M.D. took and read the proffered piece of paper.

"At four o'clock Raymond Bent came and I let him in by way of the side door. He chatted with me a few minutes before going to the laboratory, where my brother was. The laboratory is on the second floor and I had occasion to pass it several times on my way to and from my bedroom. My brother never told me about his experiments, and it was understood I was never to enter his workroom. One time the door was ajar and I saw the two of them standing by some sort of a machine. That is all, except at about four-thirty, when I was passing the laboratory door on my way downstairs, I heard a terrible crash. I guess it was a pretty bad one, because all the plaster was knocked off the ceiling in the room below. When my brother didn't answer my call, I got frightened and went in. Things were upset—you know, basins and things—but neither Bent nor my brother was there."

The article went on to state that Reuben's sister admitted that the machine had also disappeared.

"Some bright reporters," remarked the Doctor

ONE of America's great entomologists made the statement that if the insect world ever took it in its heads to conquer this planet, there would be no stopping them. Man would be powerless against billions and billions of ants if they should ever become organized. Anyone who has been in the tropics and has seen army ants at work, and has seen how they eat everything that comes their way, humans and cattle included, will understand this statement much better. Let no one think that Mr. Flagg's picture is overdrawn. Yes, even to the milking of human beings, for ants do keep cattle now and do milk them, just as we milk our domestic cows.

Relentlessly, the loathsome thing clambered upwards until it had settled itself firmly on neck and shoulders. The two antennae reached down my back, gripping the corners of my mouth and clamping themselves there. And as I fought to unseat the inhuman rider perched on my shoulders, I knew what I was. I was an inferior animal being conquered, beaten, trained by a superior one.

of Science, "got to speculating if the professor hadn't hopped off in some sort of an airship he had built; but the theory wouldn't stand up against the fact that while one end of the laboratory was all glass, and the great door-like windows swung wide open, a crow could hardly have winged its way through the iron grilling, which protected them on the outside."

"Wasn't there talk of missing money in connection with the affair?" asked the M.D. "Seems to me, now, that I do recall reading of the case. Only . . ."

The nationally-known lawyer nodded. "Unfortunately, yes. At the time of his disappearance, the professor had drawn twenty thousand dollars of his sister's money from the bank for reinvestment. The money had been issued to him in Treasury notes of one thousand dollars each. Some people were uncharitable enough to find in this fact full explanation of his disappearance. However, notes bearing the serial numbers of those issued to him have never appeared on the market, as far as is known."

At this juncture the doorbell rang and a few minutes later the president of the university and two members of the faculty were ushered in. When they were seated, the lawyer addressed the gathering.

"I take it that everyone of you is aware of why I have asked you here tonight." He held up the manuscript. "My letters, I believe, explained adequately how this document came into my possession. It only remains for me to say that I have submitted it, with specimens of the handwritings of Professor Reubens and Raymond Bent, to Herman Schultz, the chirographist, and he pronounces the writing and signatures in the manuscript to be identical with that of the specimens submitted."

The president of the university nodded. "I believe that is clear to all of us. The manuscript is held to have been written in the hand of Raymond Bent, and bears both his signature and that of Professor Reubens. Very well, then. We are acquainted with the peculiar manner in which you received it, but as yet are unaware of its contents. If you would kindly read the communication to us . . ."

Thus bidden, the lawyer cleared his throat and read what is probably the strangest document ever penned by human hand:

The Document

WHETHER any human eye, in the age I have left behind me forever, may chance to read this writing, I do not know. I can only trust to Providence and send what I have written into the past with the fervent prayer that it will fall into the hands of intelligent people and be made known to the American public.

When I came into the Professor's laboratory on the afternoon of October 14, 1926, I had not the slightest inkling of the terrible fate that was so soon to befall me. If I had, I would probably have fled in horror from the place. The Professor was so absorbed in tinkering with the mechanism of the machine which had engrossed his interest for nearly two years, that he did not at first notice my entrance. I picked up a book lying open on a stand to one side of him. It was H. G. Wells' "The Time Machine." I smiled at the absurdity of a great professor being interested in such truck. The Professor turned and caught me smiling. "Impossible fiction," I remarked, with what, God help me, was an illy-concealed sneer.

"Fiction, yes," replied the Professor, "but why impossible?"

"Surely you don't think there is anything possible about this?" I exclaimed.

"Yes, I do."

"But to travel in something that has no reality!"

"What is reality? The earth on which we stand? The sea on which we sail? The air through which we fly? Have they any existence outside of the attributes with which our senses endow them?"

"But I can touch the earth," I protested, "I can feel the sea, but I cannot touch or handle time."

"Neither can you touch or handle space," said the Professor dryly, "but you move in it: and if you were to move through space, say from this spot to the City Hall in Oakland, you would probably calculate the journey took you fifty minutes of time. In that sense time would have a very real significance for you, and you would have moved in it to the extent of fifty minutes. But if I ask you why it isn't possible to move ahead in time not fifty minutes, but fifty centuries, you consider me insane. Your trouble is that of most people, my boy; the lack of enough imagination to lift your brains out of the accustomed rut."

"Perhaps so," I replied, reddening angrily; "but, save in fiction, who has ever invented a time machine?"

"I have," answered the professor. He smiled at my look of disbelief. "Now this thing," he added, patting the mechanical creation affectionately, "is a Time Machine."

It was the first time he had ever told me what his invention was supposed to be.

"You mean it will travel into the future?" I asked skeptically.

"If my calculations are correct—and I have every reason to believe they are—then this machine will take us into the future."

"Us!" I echoed.

He walked over and shut the door with a bang. "Have you any objections to taking such a trip?"

"None at all," I lied, thinking the chances of doing so were very remote.

"That is splendid. Then there is nothing to prevent our giving the machine a trial this afternoon."

The machine had two seats, with backs probably two feet high. The Professor seated me in one of them, while he occupied the other. "Just as a precaution to keep you from falling out," he smiled, buckling me in with a broad leather belt. In front of himself he swung a shelf-like section of the apparatus on which was arranged a number of dials and clock-like instruments. In some respects—save for the clocks—the shelf resembled the surface of a radio board. Whatever cogs and wheels there might be were hidden in the body of the machine, under our feet.

"That," said the Professor, indicating a dial, registers the years and centuries; the one next to it, the weeks, days and hours; and this handle," he touched a projecting lever, "controls the machine." Before sitting down, he had lifted the bottom from his seat and revealed below it a hollow space filled with tools and provisions. "It is the same with your chair," he said with satisfaction, "and if you examine the leather belt, which holds you in, you will discover that it also acts as the holster for a Colt automatic and a box of spare cartridges." He settled himself

comfortably in his seat and grasped the lever. "Are you ready, my boy?"

So business-like was his manner, so self-assured, that for a moment a qualm of doubt assailed me. What if the confounded thing were to work! Then my commonsense got the upper hand again. Of course it wouldn't! Already I began to feel sorry for the professor. At my nod of assent, he pressed down on the lever. The machine shook; there was a purring noise; but that was all. I smiled, partly with relief, partly with derision. "What's the matter?" I asked; and even as I spoke the whole room spun like a giddy top and dissolved into blackness. The roaring of a million cataracts dazed and stunned me. There was an awful sensation of turning inside out, a terrible jolt, and then it was all over and I was lying sprawled out and half senseless in a wreck of disintegrating iron and steel. My first thought, of course, was that we were still in the laboratory. The machine had turned over, or exploded, and nearly killed me. That's what came of listening to bughouse professors and their crazy inventions! I felt my head and limbs blindly. Sound enough, I seemed, save for a few scratches and bruises. I struggled to sit up; as I did so, I came face to face with an old man with a tangled mane of gray hair and an unkempt beard. It was several minutes before I realized that I was looking at the professor. Even as I did so, I became conscious of the fact that black whiskers hung down on my own breast and that the top of my head was as bald as a billiard ball. I looked around and saw that we were lying on a prairie-like expanse of country. Some trees were far off to one side and the immediate plain was covered with stunted bushes and tufts of grass. Anything more different from the laboratory could not well be imagined. As I stared stupefied, not yet realizing the awful truth, the Professor gave a deprecating cough.

"I'm afraid," he said in a voice that was his, yet curiously changed, "I'm afraid I overlooked a very vital thing." He shook his head. "How I was so stupid as not to think of it, I can't understand."

"Think of what?" I mumbled.

"Of the almost elementary fact that as we journeyed into the future our bodies would age."

HIS words brought me to my senses. Incredible as it seemed, this was the future. At least we had come to rest on some other spot than that of the laboratory. And undoubtedly physical changes had taken place in the Professor and myself.

"We must return at once!" I cried.

"Of course," replied the Professor, "at once. But how?"

I looked at him dumbly.

"As you see," he remarked, picking up a piece of rusted, crumbling metal, "the machine just kept going until it was so old it fell to pieces. My boy, we have had a lucky escape."

"A lucky escape!" I echoed.

"Yes; for if the machine had not worn out when it did we would have gone on until we perished from old age."

"But I thought you told me once that old age was not caused by the passing of time."

"I did; but you can readily understand that in our journey through time we encountered more or less friction from environment. Of course the faster we traveled through a century, say, the less action of environment on our bodies there would be in a given period of time. But stil there would be enough to age us after awhile. At least, such seems to have been the case."

"How far have we come?" I asked.

"I don't know. All my instruments are destroyed. As you see, the machine is junk."

"But we can build another."

"What with?"

I groaned. Machine, tools, weapons, all were gone. God knows how many centuries in the future, we stood on a bleak prairie, middle-aged and old, the rotting clothes falling from our backs, with only our bare hands to protect us from whatever dangers might lurk for us in this new and unknown age. With despairing eyes I stood up and scanned the horizon. "Look, professor, look!" I cried, seizing him by the shoulder. "Aren't those men running towards us?"

The professor focussed his eyes in the direction my finger pointed. Perhaps a half mile away, having seemingly just topped a rise, was a body of what appeared to be men. Even at that distance something about them looked peculiar; and when they came nearer we saw that they were running with bowed backs, their heads jutting at almost right angles with their bodies, and their arms dangling loosely in front of them.

"Those are the queerest looking men I've ever seen," I said in alarm, looking around for a weapon to defend myself with in case of attack, and plucking up the only thing available, a piece of rusted iron. The professor did likewise. Thus armed, we stood up to await their approach, for there was no place to hide, and nothing behind which we could find shelter. Perhaps three hundred yards away the odd men spread out into a semi-circle. There were probably twenty-five or thirty of them, naked, with not even a breach-clout, shaggy of hair and beard, and with hair almost as heavy as fur running down their backs and on the weather sides of their arms and legs. They continued coming at a fast gallop; but just when it seemed they would run on and over us, they reared back—much as do horses when reined in—and came to an abrupt stop, shaking their heavy manes, and pawing at the ground with their feet.

"Very peculiar; very peculiar indeed," said the Professor thoughtfully. "Except for the clearly defined features of their faces and the general structure of their bodies, one would not take them for men at all."

"They seem more like apes," I retorted. "I hope they're not as savage as they look. Speak to them, Professor, before they start something, and see if they can't talk."

The Professor held up one hand in a peaceful gesture and took a step forward. He raised his voice so as to make it carry across the thirty or forty feet which still separated the shaggy men from us.

"We are American travelers!" he shouted. "Is there any among you who can talk English?"

The only response to this was a snorting and a rearing, accompanied by a rustling sound which affected the nerves disagreeably. Several of the shaggy men broke from the circle, doing a great deal of plunging and rearing before reluctantly coming back into formation again.

"By God, Professor," I said fervently, the goose-

flesh appearing on my body, "I don't like this at all."

The Professor repeated his question in French, Spanish, Italian; he asked it in Portuguese, and in what he later told me were several Indian dialects; but all to no purpose. Only every time he paused to catch his breath, there came that dry rustling as of the rasping of metal on metal. Suddenly he stepped back and caught me by the shoulder.

"Those creatures," he whispered, gesturing towards the shaggy men, "are controlled."

"Controlled!" I exclaimed. "What do you mean?"

"That there is something on their shoulders."

I thought the Professor was taking leave of his senses. "What could it possibly be," I began, then stopped, for the shaggy men were in motion. They divided, one group going to the right of us and the other to the left. In our rear they joined ranks and made us retreat before them. It was then I caught my first glimpse of the unbelievable riders that perched on their shoulders and rode them, much as human beings ride horses. Long antennae reached down on either side of the shaggy men's faces, gripping the corners of their mouths and serving to guide them as with bit and bridle. Other antennae waved in the air, or rubbed one on the other, producing the rasping noise which had so grated on my nerves. The bodies to which these antennae were attached were about a foot in length.

"In the name of God, what are they, Professor?" I screamed, half raising my piece of iron as if to throw it at the slowly advancing horrors. But the Professor gripped my arm. "Don't start fighting," he warned sternly, "unless you have to. As to what they are, I'm not certain, but I believe them to be some sort of ant-like insects."

We retreated, slowly at first, then at a brisk walk, finally at a trot. When we moved in a given direction the insects were content to keep their steeds at a distance; but when we veered from it they urged on the shaggy men to head us off.

"I believe those insects are driving us in front of them as men herd cattle," gasped the Professor.

We topped a rise and saw stretching away before us a level plain. Far out on this plain—several miles away, perhaps—were numerous mounds, and it did not take us long to suspect that they were our destination. Several times the Professor sank to the earth, utterly winded, unable to run another step. At such times, I stood over his body with my iron club, determined to sell our lives dearly, but there was no need to fight. The shaggy men were brought to a halt and their uncanny riders waited patiently until the Professor could regain his feet, when we were once more urged ahead at a brisk pace.

Night had fallen and it was almost too dark to see when we finally staggered through a narrow gap into a large enclosure and were left to our own devices. The splash of water led us to a stream, where we slaked our thirst and bathed our sore and swollen feet; and then, too miserable and tired to care what further happened to us, we huddled together for warmth and fell asleep.

The Master Ants

SEVERAL hours later, the Professor and I awoke, chilled to the bone. And no wonder! For we were practically naked, only shreds of cloth clinging to our backs. The moon was riding high overhead, making the enclosure as light as day. Now and then the silence would be broken with a shrill scream or a heavy snort. Once or twice we heard the metallic slithering of antennae; and once, in looking up, I saw an insect crawling on top of a mound, its sinuous body etched sharply against the sky. I shivered with more than the cold. "Professor," I whispered, "is this a nightmare or am I really awake?"

"I'm very much afraid that both of us are wide awake," said the Professor with a sigh.

"But it doesn't seem possible," I exclaimed. "Those bugs . . . My God, Professor, what has happened to the world!"

The Professor pulled thoughtfully at his unkempt beard. "I don't know. In our day there were scientists who held insects to be a growing menace to man's rule. Perhaps . . . But you could see for yourself that those ants rode men!"

"Were they men?"

"Yes; I believe they were."

"But their hair?"

"Could be accounted for by the fact that they were exposed, naked, to all kinds of weather. The fit, in this case, the strong, hairy ones, would survive and breed. A few centuries of such breeding could possibly produce the type we saw."

The thought of a world in which insects were the dominant species and men subject to them as beasts of burden, filled me with horror. If such were the case, what would our fate be? In spite of the chill night wind, in spite of the fact that we were cold and hungry, I dreaded the morning. But daylight came at last, and then we were better able to examine our surroundings. The enclosure was probably a half mile square and fenced in with an irregular line of mounds anywhere from ten to twenty feet high. Across the stream from us, bedded against the walls of a mound, were several hundred of the shaggy men. Soon after daylight they were afoot and came down to the stream to drink, wading into the water, in some cases, up to the waist, and drinking with an animal-like abandonment that filled me with disgust. It couldn't be possible that those creatures had once been human beings like the professor and myself. No, no! It seemed incredible that mankind could ever have fallen so low.

Some of the shaggy men crossed the stream to view us more closely. Most of these were females, stooping forward as they walked. One of them came quite close to us, uttering plaintive cries, and the Professor stepped forward in an attempt to speak to her. At this a great hulking bull of a fellow, with fiery red hair that glinted in the sun, and who would have stood well over six feet if he had straightened up, rushed at the Professor with a roar. The latter retreated hastily; whereupon the leader of the herd—for you could have called the gathering of shaggy men nothing else than a herd, and the red-haired giant the leader of it—turned upon the females, and with blows of his fists and sundry kicks of his splay feet, drove them back across the stream where they all, men, women and children, took to grubbing in the ground for some sort of roots.

"And you call them human," I said to the Professor.

"They once were."

I shook my head. "Those creatures are bent almost double. Even the children are so formed, and the posture seems a natural one to them."

"Perhaps they were bred for that characteristic."

"Bred!"

"Why not? If things are as I suspect, then those men have become the domestic animals of the insects. In the beginning they were probably bent double by bearing the weight of their riders. Acquired characteristics are, of course, generally conceded to be uninheritable, but little is known of the possibilities of variation—what effects the constant doing of a thing may have on the germ-plasm. It is possible that mutations with certain peculiarities of structure were born and men, such as you see, bred from them."

Before I could make reply, we had our first leisurely view of one of the ant-like insects. It suddenly appeared on top of a ten-foot mound a few yards from where we stood. Its body was in three segments of an almost metallic blackness, being raised, on stilted feet, about eight inches from the ground. Four feelers, or antennae, waved in the air or rasped one on the other, and were attached to a mobile head. There was no indication of eyes, yet the weird thing paused in one spot for all of five minutes, as if intently regarding us, and I, for one, believed that it could see. Other insects appeared on the mounds, and soon the air was full of metallic slithering. At the sound, the males of the shaggy herd pricked up their ears, stamped the ground with their feet, and then continued feeding. On the other hand, the females ran towards the mounds, stretching up their hands to the insects on top of them, and calling out with imploring cries. Then we witnessed a strange sight. The ants crawled down the wall in one stream, paused beside a female for a moment or two, and then crawled up the wall again in another. It was a few minutes before the reason for this dawned on me

"Good Lord, Professor!" I exclaimed suddenly, "they're milking them!"

It was true. The females of the shaggy men were so many cows being milked. Again the horror of our position came over me. We were castaway in a future age where man no longer was lord and master. Instead, he was a beast to be driven like a horse, milked like a cow, and—since ants ate meat, or used to—slaughtered like an ox. I wiped the cold sweat from my forehead.

"Professor," I said, "we must escape from here."

"Of course," replied the Professor; "but how—and where to?"

There was no answer to make. The mounds hemmed us in; and even if we could get beyond them and away from our present captors, there were doubtless other mounds and other insects who would capture us. If the world was really in the hands of ants, then we were animals to be hunted down, tamed or killed. This age into which we had blundered was not safe for man—at least, not for civilized man. I closed my eyes to shut out the horrible sight of crawling insects. I tried to shut my ears to the sound of insane slithering, but heard readily enough when the Professor said somewhat nervously, "My boy, I believe they're coming over here." Three of the ants had mounted on the backs of shaggy men and were trotting them towards us. I looked desperately around for my piece of iron. It was gone. So was the Professor's. Someone or something had removed them while we slept. Nor was there anything else that could be used as a weapon. In this dilemma we turned and ran, but were soon overtaken. Two of the shaggy men closed in on me, while the third held the Professor powerless. I fought like a fiend; but the four hands of the shaggy men were like iron bands, the grip of their fingers like vises. In a few minutes I was helpless. Then came the crowning horror. One of the insects dismounted from the back of its steed and climbed on mine. At the feel of its suction-like legs on my flesh I went crazy. The muscles writhed in horrified protest under my skin. I bit and screamed and lashed out with my feet. All to no avail. Relentlessly, the loathsome thing clambered upwards until it had settled itself firmly on neck and shoulders. Two antennae reached down my cheeks, gripping the corners of my mouth and clamping themselves there. Almost at the same instant the shaggy men loosed their grip of me and I was free. For a moment I stood still, dazed and trembling; then the antennae gave a pull at my mouth, wrenching the head back with a cruel jerk. With a scream of pure terror, I plunged forward in a mad leap, clawing upwards with my hands at the awful incubus on my shoulders, tearing futilely at the antennae which gripped my mouth. And as I fought to unseat the inhuman rider perched on my shoulders, I knew what I was: I was a horse being broken, a wild mustang, knowing for the first time the torture of bit and saddle, of spur and quirt; I was an inferior animal being conquered, beaten, trained by a superior one. The blind, unreasoning fear I felt, a thousand wild horses being brought under the yoke of all-powerful man must have felt. I ran—it seemed for ages—goaded, spurred, until I could run no more. My gait slackened, became a trot, a walk. Finally I stood still, frothing blood and saliva at the mouth, gulping painfully for air, trembling in every limb. The incredible insect breathed me for a few minutes before again urging me into a trot. I made no protest. I was beaten, cowed. The antenna on the left pulled; I went to the left. The one to the right tugged; I went to the right. My rider drove me past mounds where ants perched watching, much as cowboys of the past were wont to straddle corral fences and observe one of their number perform. They slithered what was undoubtedly their applause. For about twenty minutes I was put through my paces; made to walk, canter, circle, wheel and stop at command. Finally the insect slid from my shoulders and I sank to the ground, too miserable and distraught to care whether I lived or died. I flinched and closed my eyes when it patted me with its antennae and slithered soothingly, much as a man might pat a horse and at the time say, "There, there, old boy, don't be afraid." Afterwards a quantity of raw vegetables and what appeared to be coarse grain cakes were tossed to me and the insect went away. I lay there for a long time, hardly stirring a finger, when the Professor came up and sat down beside me.

"No," he said, "they didn't ride me. Too old, perhaps."

He picked up a grain cake and gnawed at it hungrily.

"Try one, my boy, they're not half bad. Besides you'll feel better if you eat something."

I suppose it seems queer to tell it, but we sat there on the rough grass, with the slithering ants coming and going about their business, and ate those cakes. Neither one of us had tasted food since the day before—or was it several centuries before?—

and were half starved. Only hunger could make eating at all bearable with my sore and lacerated mouth. Suddenly the Professor spoke to me in an odd tone.

"My dear boy, I don't like to arouse any false hopes, but will you take a look at that thing in the air and tell me what you think it is."

I glanced up apathetically enough; then at sight of what I saw I leaped to my feet with a wild cry; for, soaring through the air at a height of about seventy feet from the ground was a craft of shining metal.

"An airship!" I shouted deliriously. "An airship!"

2450 A.D.

YES, it was an airship. There could be no doubt of that. And where there was an airship, there must be human beings, men.

"Then civilized people are still living on the earth," cried the Professor exultantly. "Quick, my boy, shout and attract the driver's attention."

He had no need to urge me. Pain, weariness and despair were forgotten as I waved madly. "Help!" I shouted, dancing up and down. "Help!"

The strange craft jerked to a pause in mid-air, hung motionless for a moment, then sank directly earthwards for what must have been forty feet or more. Over the side looked a girl, her beautiful face wearing a look of amazement.

"For God's sake, help us!" I shouted again, "or the ants . . ."

I got no further, fear throttling my voice, for the ants were coming. Thousands of them suddenly appeared in sight, literally covering the tops and sides of the mounds. They saw the airship; there could be no doubt of that. A half million antennae reached threateningly heavenwards, and the angry slithering of them appalled the ears. The woman shouted something, what I could not hear, and waved her hand. Even as some of the insects surged down from the mounds and made for us, the airship dropped. It was a close thing. We leaped and clutched the metal sides, hanging on with the grip of desperation, as the strange craft brushed the earth like a feather and soared aloft again. I felt the sucking claws of an insect fasten to one leg and kicked out in a vain endeavor to rid myself of it. Suddenly a withering ray flashed from a cone in the girl's hand and played on the insect. There was an acrid smell of burning, a little flash of light, and the grip on my leg relaxed. With a sob of relief, I stumbled over the side of the car and fell in a heap on the floor. "Safe, my boy, safe!" exulted the Professor, who had preceded me; then, turning to the girl, who was regarding us with wide-eyed wonder, he asked, "What year is this?"

"2450," she answered in perfect English.

"A.D.?"

"Yes."

"Hum," muttered the Professor, making a quick mental calculation. "Five hundred and twenty-five years in the future."

But I was too busy adjusting myself to this sudden change in our fortunes to give him much heed Far below us the earth was unrolling like a checkered carpet, mounds, hillocks, trees sweeping by at considerable speed. What power was driving the airship, I wondered. There was no sign of a propeller; neither did the craft possess wings and a rudder; nor any of the other properties associated in my mind with flying machines. Only the girl stood in front of a square box and now and then shifted a small lever. She was, I judged, twenty-one or two, with red-gold hair, eyes like slanted almonds, and skin of yellow ivory. Her lithe body was of medium height and clad in a loose-flowing robe of some scarlet-colored material.

"Where are we going?" I asked her.

"To the Castle," she answered.

As she regarded me, I realized for the first time that I was naked; but the Professor seemed blissfully unconscious of the lack of any clothes.

"We have to thank you for rescuing us from a very dangerous and awkward position," he said courteously.

"I took you for beast men at first," she replied, "and if you hadn't called out in English, I shouldn't have stopped. Tell me, where do you come from and how did you fall into the hands of the Master Ants?"

"We came from the past," replied the Professor, "and landed on the plain about seven miles from where you picked us up. The insects—what you call Master Ants—captured us there."

"The past?" questioned the girl. "Where is that? Over the sea?"

"No," answered the Professor. "In another age, an earlier one than this. Out of the past, you know."

The girl didn't know. She stared at the Professor as if she thought the hardships we had undergone had unbalanced his mind. As for me, I was content to sink into a seat and wonder what kind of place was this Castle she was taking us to, and what manner of people were they who inhabited it in the year of our Lord, 2450. I had not long to wonder. About an hour's flight brought us in sight of a vast structure which crowned the top of a high hill. Its walls glittered like dull silver under the rays of the afternoon sun, and its roof seemed to be one large garden or park. Never had I seen anything more beautiful or bizarre. Here and there domes of silver towered among swaying palm trees, spruce and live oak. The car swooped down like a homing bird and came gently to rest on a wide plaza and was immediately surrounded by a crowd of curious people of all ages and both sexes. The women were clad in gay-colored dresses; the men wearing white trousers, with soft linen tunics. Both men and women went bareheaded and barefooted, and the men were clean-shaven. At sight of us, the women and children fell back with cries of alarm, and some of the men made as if they would attack us forthwith; but the girl cried out that we were not beast men, but English-speaking travelers whom she had rescued from the Master Ants. At this announcement hostility ceased, but the amazement with which we were regarded deepened.

"How is this possible?" said one handsome young fellow. "Save for ourselves, there are no English-speaking people left alive in the two Americas, and for three hundred years no word has come from Europe. The Master Ants rule this country, and perhaps the world. Where, then, could these men have come from unless it be from the ranks of the beast men?"

"We are Time Travelers," began the Professor; "we come from . . ."

But a tall, commanding man of about sixty interrupted him.

"Our guests are worn and weary. Time enough for questions after they have bathed and fed and rested. Come, come! Are we of Science Castle so inhospitable as to leave two wayfarers to faint at our very door?"

At these words, the young fellow fell back abashed and willing hands lifted us from the aircraft. It is hard to tell of the exquisite enjoyment of the next few hours. We were led into a central roof building of dull silver and bathed and washed. Soothing lotions were applied to my wounds. Our bodies were anointed with refreshing balms and swathed in soft robes. Tangled beards were clipped to the skin and our faces shaved. After all these ministrations, I glanced in a mirror and saw the reflected features of a man of about forty-odd, bald of head, yet not entirely unreminiscent of the youth I once had been. Food was served to us as we lay on soft couches. First a thick broth, aromatic, satisfying; then various dishes whose names I did not know; but all were palatable. After eating, we fell asleep and slept, we discovered later, until eight o'clock of the next morning.

Science Castle

WITHOUT a doubt, our couches had been enclosed by four walls when we fell asleep. What miracle was this? We were lying in an open space with only some green shrubbery between us and the wide plaza on one side, and walks and gardens on the other three. Children were romping in the plaza, evidently laughing and shouting, yet their voices came to us but faintly.

"I suppose we're not dreaming," said the Professor. He got up and took a few steps forward; then came to an abrupt halt. "This is very odd," he said; and even as he spoke, the four walls magically enclosed us, the Professor standing with his face against one of them.

"Good morning," said a laughing voice. "I forgot your room was to be left opaque and turned on the ray."

It was the handsome youth who had questioned us the day before.

"The ray?" asked the Professor.

"Oh, I forgot!" exclaimed the youth. "Everything is probably strange to you. The ray is what makes the walls transparent, so that one can look through them."

"But what is it?"

The youth looked puzzled. "Why I don't know that I can tell you, offhand." He scratched his head in perplexity. "I guess it's like electricity used to be. Thousands of people turned it on every day, but nobody could tell you what it was."

We dressed ourselves in white trousers and soft tunics of a fair fit and followed him to a central dining room. It was strange to walk through what was undoubtedly the corridor of a large building and yet never be certain whether one were indoors or out. Two or three hundred people were breakfasting in this central room and I noticed that they seemed to be a mingling of all races. There were some with the slanted eyes and yellow skin of the Chinese; others, plainly, had more than a drop of negro blood in their veins; yet all were mingling with their white companions on terms of perfect equality. In Science Castle, I was to learn later, no distinction was made as to race or color. Among the early inhabitants had been numbered Japanese, Negroes, and Chinese, as well as whites. A common foe, a common vital danger had served to weld the various strains together. "Race and color antagonisms," a Scientian told us, "would have proved fatal to the small community. Of necessity a mingling of races took place. My grandfather was a negro. The girl who rescued you has Chinese blood in her veins. Whatever differences existed among our people in the early days has been ironed out by centuries of a common culture and environment." But I am anticipating.

Breakfast consisted of fruit, cereal, scrambled eggs, and milk, and we served ourselves cafeteria fashion. After eating, we repaired to the plaza where several hundred people were gathered, seated on the grass or on rustic benches. Seats were given us on what was evidently the raised platform of a speaker's rostrum. The tall, elderly man who had spoken for our welfare the night before, received us kindly.

"My name," he said, "is Soltano, Director of Science in Science Castle. I am speaking for my companions as well as for myself when I assure you that you are welcome to our home and refuge, and need fear no harm. However, you must realize that it has been centuries since strangers like yourselves have entered Science Castle, and understand that your rescue and coming has caused us untold amazement. Now that you are clothed and shaved, we readily perceive you to be, not beast men, but civilized beings like ourselves. Yet are we puzzled as to whence you could have come."

The Professor replied courteously: "My companion and myself thank you for your kindnesses to us and gratefully receive your assurances of future asylum and safety. A little of your curiosity, I can understand, and shall do my best to satisfy it."

He had raised his voice so that the words might carry to the people below.

"There is no need to pitch your voice above its ordinary key," explained Soltano. "This rostrum is really an instrument which broadcasts and magnifies it. Everyone—even those of us who are employed elsewhere—will pick up what you say by means of ear-phones."

I noticed, then, that the attentive people in the plaza were holding round devices to their ears and ceased wondering how some of them, leaning on the parapet two hundred yards away, expected to hear.

"Splendid," said the Professor. "Some sort of an amplifying, radio machine, I see." He beamed on Soltano. "I merely talk to you, is that it? and all will hear." For a moment I thought he was going to interrupt the interview long enough to examine the platform; but if he wanted to do so, he conquered the temptation. "My name," he said, "is John Reubens, late Professor of Physics at the University of California, and this lad here is Raymond Bent, my secretary. We are Time Travellers."

"Time Travellers!" echoed Soltano.

"Yes," replied the Professor, "from the year 1926. This means, of course, that we have come five centuries and a quarter out of the past."

There was a stir in the crowd below. Soltano looked amazed, as well he might. "This is a strange thing you are telling us, John Reubens," he said at last, "and well-nigh incredible. Much simpler would it be to believe that you had managed to come over

the sea from Europe or from Asia. Never have we listened to such a tale before."

"Nor anybody else," replied the Professor with dignity, "as we are the first human beings ever to make such a trip."

"And how did you come?"

"By means of a Time Machine, the remains of which lie rotting on the spot where the Master Ants discovered us." He then proceeded to tell of the building of the Time Machine, of our incredible rush through space and of our awakening in another age. Then he told of our subsequent capture by, and experiences with, the insects. When he had finished, excited talking and gesturing broke out among the people below. Evidently there were doubting Thomases among them, who discounted our story. But the Professor was not disturbed.

"If you are amazed at what I have told you," he said, "how much more amazed are my companion and myself to find ourselves in a future where ants ride men as steeds and human beings live penned in such a castle as this. Such a state of affairs was not even dreamed of when we left our own day and age. Naturally we are curious to learn how it has come about."

"OUR historians are not quite clear as to that," replied Soltano, "If you came through time from 1926, then you left your period nine years before the ants began their attack on mankind. It was in 1935 that the papers printed news of a queer happening in South America. Natives came fleeing from the jungles with stories of how the white ants were eating everything up in the forests—even men! In the United States no one paid much attention to the news. The world, at that time, was in a state of political unrest and the government and people were watching Europe and building up a great air force, they were too busy to give heed to preposterous yarns emanating from Latin America. A year later the newspapers again flamed into headlines with news from Argentina, Peru, and Brazil. Small towns in the interior of these countries were being devastated. It had always been known that termites would destroy things carelessly left exposed in the fields or jungles; but now they were eating up brick and stone. Buildings collapsed at the touch of a hand. Men woke and turned to wake a sleeping companion who dissolved into dust at a pressure. Sunday supplements carried lurid stories and sensational pictures for the edification of their readers. Then all such nonsense was swept into oblivion by the fact that Poland declared war on Lithuania, Russia moved to intervene, and Italy and France came to death-grips for five bloody years. In the United States ensued what were called prosperous times. Munition factories provided well-paid work for thousands of workers and made millions of dollars for hundreds of millionaires. Everybody was busily employed and had no time to think of crazy happenings reported from crazier spiggoty republics. Only a few scientists from the Smithsonian and other institutes went down to South America to investigate and wrote back long reports which were read with foreboding by a few learned men and ignored by everybody else. The papers they wrote—the records of those days—are preserved in our library."

"But the Master Ants," asked the Professor, "where did they come from, and how did they overwhelm the United States?"

Soltano waved his hand. "I am coming to that. The Master Ants were first noticed six years after the depredations of the white ants commenced. How they came nobody knows. Only in the nests of the termites, in the little galleries and chambers underground, something stupendous was taking place, something fraught with disaster for the human race. During thousands of years the white ants had undoubtedly been changing, evolving, acquiring, God only knows, what knowledge. It is all speculation, of course, but you doubtless recollect how the bees, by feeding their larvae different foods, will produce at will a queen, a drone, or a worker. Well, the white ants had discovered how to make such food—and to feed it to their larvae. At any rate, the Master Ants appeared. No one had ever seen them before. They swarmed down from the jungles by the hundreds of thousands, and wherever they went the people were stricken and fell in the fields and the streets. We now know that the termites bit them, injecting a subtle poison into their systems which induced a species of paralysis; but at the time it was only known that of every three that fell, two were devoured, and that the third one recovered, stupid, beast-like, to become the creature of the Master Ants. In vain the southern republics sent their soldiers to battle the insects. Guns crumbled to pieces in their hands. Armies lay on the ground to bivouac and only one soldier out of every three ever rose again—and he rose to bear an ant on his shoulders and chase his fleeing countrymen. Panic spread. Natives fled to the seashore and put to sea in all kinds of unseaworthy crafts—only to drown by the thousands. When the Master Ants finally occupied the crumbling ruins of Rio de Janeiro, the whole world was forced to realize that something terrible was happening in South America; and when fifteen years later, all South America having come under their sway, the termites were reported to be making inroads on the Canal Zone, a feeling of uneasiness swept through the people of the United States. Still it seemed impossible that the mighty northern nation could be invaded and flouted by such an insignificant thing as an ant. Newspapers ran articles written by government experts, pointing out how absurd it was to even entertain the thought. South America had succumbed, said the experts, because she had been a tropical wilderness without proper chemical defense. Elaborate plans were drawn up, showing how the border states were protected from invasion by systems of pipes and sprays; showing how fleets of airship were prepared to drop tons of chemicals and explosives. Only the scientists who had studied the tactics and methods of the ants knew how futile these preparations were; but they and their suggestions were ignored by the petty politicians and nincompoops who were directing the affairs of the country."

Soltano paused. I stared at him, wide-eyed.

"And the ants came," breathed the Professor.

"Yes, the ants came. Millions of them were killed with explosives, with gases and poisonous chemicals, but their numbers seemed as exhaustless as the sands on the seashore. In the space of a year they ate up the pipes and put the sprays out of commission. But you will have to read the history of those times for a more detailed account. Then you will learn how the United States soldiers marched against the invaders and met the same fate as had previously befallen the armed forces of South America and Mex-

ico. The scientists had suggested that the soldiers go mailed in a composite metal they had made from the blend of three other metals, comprehensive experiments having shown it to be the only substance the ants could not devour. Guns, pipes, everything possible, they said, should be protected with a casing of this metal. No one paid any attention to them. Rebuffed, a group of them interested financial backing and retired to this hill. Here they congregated machines and workers and started building the castle you now see. It was intended at first for an observation base, merely; an outpost, as it were, from which to spy on and study the habits of the insects. But as the years passed, and it become increasingly clear that the country was doomed, the place became thought of as a permanent home and refuge. Commenced in 1955, it was not finished until the year 2000. For some reason the ants were, comparatively speaking, slow in infesting North America. Perhaps the cooler climate had something to do with this. For instance, they swept through south Texas and all of the southern states before they fared further north. When their coming finally drove the inhabitants of this vicinity panic stricken before them, the scientists—those of them who still lived—entered the Castle, accompained by the workers and their families, and we, whom you see today, are their descendents."

"But the rest of the people!" cried the Professor. "What became of them?"

"They went crazy with fear," replied Soltano. "For fifty years the United States was increasingly the habitat of terrified mobs. The economic life of the country became disrupted. Citizens, white and black, fled from the southern states and added to the congested panic of northern cities. Famine raised its gaunt head; crime became prevalent. Hundreds of thousands died of hunger, of disease epidemics. Those who could beg, borrow or steal a passage abroad, fled to Europe, to Asia. Out of what was estimated to be a population of a hunderd and twenty millions in 1935, only seven millions were living in America when the ants turned north."

"And now?" asked the Professor.

"In the whole western hemisphere there are probably a few hundred thousand beast men bred by the Master Ants for food and transportation."

I stared at the Professor with horror. Only yesterday, it seemed, we had left a populous, thriving America. Great industrial cities had sent their smoke and ash into the sky; giant locomotives had carried thousands of people on two ribbons of steel over thousands of miles of country; and now . . . now . . . it was all as if it had never been. Could it be possible that five hundred years had dissipated an empire? Five hundred years!

"Come," said Soltano; "enough of such matters for the nonce. You will learn more of us as the days pass, as you become better acquainted with us individually."

He led the way down into the plaza where we were immediately surrounded by the crowd and warmly greeted.

Soltano Tells of the Progress and Danger of the Age

WHEN I stepped down from the rostrum on that first day in Science Castle, it was to meet the girl who had rescued the Professor and myself from the Master Ants. Her name was Theda. If anything, she looked more beautiful than she did the day before.

"You have gone through much danger, Raymond," she said shyly.

"It was worth it, if it brought me to you," I replied; and meant it.

She did not seem displeased.

"It is the hour for bathing. Let us go to the pool."

I looked around for the Professor; but he was walking away with a group of elderly Scientians, who were evidently bent on entertaining him.

"Very well," I said.

The pool was an artificial pond perhaps fifty yards square. I plunged after her into the pool. When I drew myself, panting, out of the water at the other end of the pond, it was to find myself sprawling beside the handsome lad who had called me to breakfast. His name, I learned, was Servus, and he was Theda's twin brother. Their parents, he informed me, were both dead. Theda and he were enthralled with my accounts of the life and customs of 1926. By the time we were ready to dress for lunch, the three of us were firm friends.

In the days that followed, I learned a great deal about Science Castle and its inhabitants. With Theda and Servus I walked the parapets which circled the roof of the Castle and looked down the steep sides that fell a sheer eight hundred feet before they touched earth. From the foot of the Castle, the hill sloped away. To the east, as far as the eye could see, stretched a level waste; and to the northwest lay a range of somber hills. On the plain, twenty-five hundred feet below, grew nothing green. The sight reminded me of something about which I had wondered more than once.

"How do you get water?" I asked Servus.

"In the early days," he replied, "we relied on wells, boring as deep as four thousand feet; but two hundred years ago they began to fail us. There was a terrible time, I believe, when we were faced with a water famine. Efforts were made to bring water from distant lakes, but without success. Then just in time, our chemists discovered how to make water."

"Make water!" I exclaimed.

"Yes, from hydrogen and oxygen, you know. Now all the water we use is manufactured and stored in great tanks far down in the depths of the Castle, from whence it is raised by means of force pumps."

"Wonderful," I said, marveling at such ingenuity. But wonderful things were what one learned to expect at Science Castle. For instance, the Professor and I were invited one day to be present at a history review to be given to the children of the Castle. The walls of the classrooms were made transparent by means of the ray and there was all the illusion of being outdoors. Highly perfected projecting devices showed moving pictures depicting the building of the Castle. It made me gasp with awe when I realized that the opening reels of this stupendous picture had been taken five hundred and fifteen years before. One saw the motor caravan of scientists and workers coming to the hill and watched breathlessly as the earth was broken by great steam-shovels. One saw the vast walls of the Castle growing upward foot by foot, and finally the finished structure being furnished and stored with all the myriad inventions and devices of the twentieth and twenty-first centuries. In the same manner we were shown how the Castle was enlarged in 2075. Workers sheathed in protecting metal armor labored to raise walls. When

these walls were finished and floors installed, they were scoured with flaming rays which hardened the metal and destroyed whatever insect life might have gotten inside them. So inch by inch we watched the pictured story of how the Castle had grown to its present proportions.

"Some moving picture," I breathed to the Professor. "What a knockout that would be for Cecil B. DeMille! Did you notice the scene where the panic stricken people rushed by pursued by the ants?" I shuddered. "And the one where the scientists and workers were hoisted up the walls into the Castle? What I can't understand is why the ants couldn't have swarmed over the walls and wiped everyone of them out."

Soltano overheard me. "Because," he replied, "the walls were electrified. Nothing could have lived on them after the current was turned on."

About a week after this the Professor and I were taken into the body of the Castle proper. Far down under the fairy-like buildings and blooming gardens on its roof, were the machine-shops, the laboratories which made possible the pulsing life above. Here we saw great dynamos and whirring machines at whose functions I could not even guess. In one vast room men were putting the finishing touches to what were evidently a number of airships; in another, workers were manufacturing crude oils and thick greases. Whole floors were given over to experimental and research work of too complicated a nature for me to attempt to describe. The Professor was enthralled. He was in his element here and hated to go on.

"What do you do for metal?" he asked suddenly. "Iron, tin, zinc?"

"Hemmed in as we are," replied Soltano, "sufficient metal has always been difficult to obtain. However, we have managed it. A great deal of our tanks, wheels, shafts, and so forth, are made from pulp, from trees grown in the gardens above, and even from vegetable tops, leaves and vines which, treated by a chemical process we have discovered, serve our purpose very well. Iron is the one metal, however, for which we must mine. In those hills north-west of us are old mines which we still work when ore is needed. The work is hard and dangerous. The men engaged at it must go clothed in protecting metal and be constantly protected with flaming rays. However, some day when ore is needed, you may go with us in the airships and see the whole process for yourself."

He dismissed the subject hastily, evidently having something of further interest to show us.

"That," he said, pointing to great metal tanks and a mass of complicated pipes and whirring wheels, "is where the water is made."

He pressed a button. The walls surrounding us became transparent, and looking out we could see the brown slope of the hill. Suddenly I focussed my gaze. About twenty feet from where we stood was a small mound. Something behind it stirred. I caught a glimpse of a metallic body, of waving antennae. "Yes," said Soltano, "it is a Master Ant; they are all around us. But I did not bring you down to show you them; I am going to show you something far more deadly." He guided us into a large lift. "Under us, the foundations of the Castle sink into the ground for a hundred feet. It is where we manufacture the composite metal when needed." The lift sank silently into blackness; the noise of clanging machinery above grew fainter, seemed farther away, almost ceased. We stepped forth into a wilderness of massive columns. Soltano pressed the now familiar button and the walls faded. We could see the black earth beyond them, and even, it seemed, a foot or two into it. Something gray out there was moving and turning along little runways and tunnels. Millions and millions of tiny things were ceaselessly burrowing and gnawing. For a moment I did not understand, then Soltano spoke and enlightenment came to me. There were the termites—the white ants.

"BEHOLD the enemies we fight," said Soltano solemnly. "The insects out there are far more dangerous to us than the Master Ants, whose creators they are. Those termites are seeking to demolish the very foundations on which the castle rests by eating away the earth from under them."

I felt the gooseflesh rise on my skin.

"Three times in the last one hundred years have we had to sink our foundations further into the earth. Originally, this basement was only fifty feet deep. Now it is a hundred. In a few years it will be more than that."

"But good God!" I cried; "can't you do something to stop them?"

He shrugged his shoulders. "So far—no! However, our chemists, our various scientists, are busy experimenting night and day. It is hoped that we may perfect a poison, a ray that will kill them off, prevent them from coming near the castle walls."

"And if you cannot?" asked the Professor.

"If we cannot," replied Soltano; "then some day . . ." He made a fatal gesture with his hand.

I thought of the busy, joyful life far above, of the green gardens and the laughing women and children. I thought of Theda, and I suddenly realized how much she had grown to mean to me.

"Professor," I said that night when we had retired to our room, "with all those machines and tools at your command, couldn't you make another Time Machine?"

"I possibly could," replied the Professor.

"Then why don't you?"

"Perhaps I shall. Soltano has promised to put a laboratory at my disposal, you know."

Much relieved, I turned away. Here was a way out for Theda and myself. I fell asleep and dreamed I had taken her back on a time machine to 1926 and was showing her the University campus and pointing out the time on the campanile clock. At breakfast, Theda stood behind the counter and filled my tray with cereal, fruit, toast and eggs. That was one thing I had early noticed: there were no idlers tolerated in Science Castle. All worked at something useful. One week Servus, for instance, washed dishes three hours a day; the next he would be tending to the vegetable gardens; bringing in the fresh heads of cabbage and lettuce, gathering the firm, red carrots, or digging potatoes. At my own request, I was given such work. I was amazed at the fertility of those gardens, amazed that fruit trees would grow at all under such conditions.

"Is the soil renewed very often?" I asked Servus.

He shook his head. "It is never renewed."

"Then you must have good fertilizers?"

"We have—electricity."

"Electricity!" I exclaimed.

"Why, yes. Taken from the air by means of

magnetism. But you shouldn't marvel at that so much. Didn't a German engineer do as much in your day? But whereas he got two crops from sandy soil, we get seven."

So it went. I had noticed no animals of any sort in Science Castle, not even cows, yet there was no lack of eggs, butter, milk or meat. Servus again explained the mystery. "Milk is made from turnips and potatoes," he explained. "I believed a man named Ford did that in 1926. Eggs and meat are manufactured synthetically." He went into technical details which there is no need to set down here.

Truly a wonderful place, this Science Castle. It was difficult to realize that its brilliant inhabitants were chained to a hill-top by insects which for centuries had been man's hopeless inferiors. But were they so chained! Hadn't Theda rescued the Professor and me by means of an aircraft? And hadn't Soltano shown us others in the process of being built? And hadn't we been invited to take trips in them? One night while I sat with her on the parapet in the moonlight, I asked Theda about it. "Yes," she replied, "we have air vessels; but save for mining ore they do not do us much good."

"Why not?" I asked.

"Because outside of Science Castle there is hardly a spot they dare land."

"But there is Europe and Asia," I exclaimed. "Perhaps the ants do not control there."

"On the average of once in every ten years," she replied, "expeditions have left here for over the seas—and never returned. My father commanded the last aircraft to attempt the flight. That was five years ago," she added softly. I pressed her hand.

"But they seem to be wonderfully well-controlled machines," I said. "What drives them?"

"Radio power. Waves are sent from a controlling center in the Castle here and received by a device incorporated in the airships themselves. Complete control of the machine is invested in the driver by means of a lever which oprates a very simple mechanical arrangement. For a radius of several hundred miles, and in fair weather, the aircrafts are absolutely safe and easily handled. Many of us use them for pleasure rides. But beyond that—" She shook her head. "Perhaps atmospheric conditions interfere with the waves when sent over too great a distance; perhaps the receiving apparatus fails to operate beyond a certain point, though theoretically they should pick up power waves four thousand miles from the sending station. All we know, however, is that those who venture too far—vanish. Perhaps they fall into the sea and are drowned. Or worse still, on the plains, and the Master Ants. . . ." Her voice shivered to silence. For comfort against a black spectre which took on the hideous form of an insect, we drew together.

"Theda," I said unsteadily. "O Theda! Would you . . . will you . . ."

In answer she kissed me.

The Master Ants Take to the Air

UNDER the thin metal roof which is all that shuts away from us the hordes of conquering ants, I am seated, putting the finishing touches to this manuscript. Of the terrible catastrophe which has occurred, I can hardly write. We were standing one day by the parapet when a young Scientian who had gone on a pleasure spin, planed down from the sky and landed on the plaza. His face was ashen-grey.

"What is it?" demanded Soltano sharply.

"The ants!" gasped the breathless youth. "The ants have taken to the air!"

"To the air! What do you mean?"

"That they have mounted the backs of insects, of wasps a yard long, and are flying!"

Instantly the Castle was in an uproar. From every direction the Scientians came rushing; from the depths of the Castle, from the gardens and the pool. They assembled in the plaza and listened to the tale the youth had to tell. Attracted by strange activities among the mounds, he had flown nearer the ground than usual, when great insects had spread gossamer wings and pursued him. Fortunately, the speed of the airship had outdistanced them, though at first it had been a close chase! When he finished speaking, Soltano mounted the rostrum and addressed the gathering.

"Fellow Scientians," he said, "if what we have just heard be true, then Science Castle is in immediate and grave danger. You will remember that we have often discussed the possibility of an alliance between the Master Ants and other insects. Now it seems they have enslaved or enlisted a winged insect, probably of the bee family. Not only that, they have evidently fed them with special foods until monsters, capable of bearing a Master Ant aloft have been produced. Sooner or later we shall be attacked. The great cone must be manned at once; the chemical pumps made ready. Let everyone hasten to his post, for we are facing the gravest crisis in our history."

I stared at the Professor with fear. He stared back at me grimly.

"What do you think?" I asked with dry lips.

"That the situation is desperate."

"But the ray cones, the acids!"

"My boy," he said solemnly, "if those insects have really taken to the air, then God help us!"

I sank nervelessly into a seat; then sprang up again as the remembrance of something sent a thrill of hope through my heart.

"The Time Machine!" I cried. "Surely you have finished it by this time!"

The Professor nodded. "Yes," he said, "it is ready."

"Then we can make our escape by means of it."

He looked at me pityingly. "I'm afraid not."

"What's the matter with it?"

"Nothing. Only you forget something."

"Forget what?"

"How we aged when we travelled in it before."

"Well!"

"Don't you see? It would have the same effect on us again."

For a moment I did not understand; then the appalling truth staggered me like a bolt from the blue. The Professor read the dawning comprehension on my face.

"Yes," he said slowly, "yes. If age is caused by the action of environment, then the same friction would be encountered by the body whether it traveled forward in time or backward. In returning to 1926, we would be subjected to the same resistance, the same wear and tear, as we were in coming from it. That would mean annihilation for me, death. For yourself and Theda, would it be much better? You could expect to find yourself an old man of eighty

(*Continued on page* 178)

A VISITOR FROM THE TWENTIETH CENTURY

by Harold Donitz

He looked downward. At the street level, the width of two hundred feet had been divided into a central band of one hundred feet and two outside bands of fifty feet each. The central portion was merely a great promenade paved with the universal black substance that seemed to absorb the sunlight. The flanking bands consisted of five railless moving platforms, each ten feet in width. The speed of these platforms increased with their distance from the promenade.

MARKHAM slept. What could be more commonplace than this nightly respite from worried and worrying consciousness, during which the nerves and constitution and muscles, exhausted by the work of the day are permitted to generate new power and vigor for the work of the day to come?

And yet it is the very nature of this particular sleep, that troubles Markham, and will continue to trouble him for the rest of his life. He is as visionary as ever, but due to the sleep, or perhaps to the disillusionment which followed it, he no longer bores everyone by trying to put his visions into practice, or by explaining how they could be so put. Very seldom now does he allow his dreams to come to the surface, but when he does nobody can deny that he cuts a truly admirable figure.

To begin with, Markham is somewhat of an architect, considerable of an architect, if we are to judge by his success. He specializes in the hollow square and cooperative types of large apartment houses, but at the same time, if some wealthy faddist or *nouveau riche* desires a residence of radical design, embodying all known mechanical conveniences, and many that are not known as yet, he comes to Markham. The worst of it is that his friends and fellow architects seem to imagine that it is not latent genius that is responsible for his successes, but rather superior practical ability; that he got this ability by industrious application, and all that sort of thing, at school. Markham must realize how futile it would be to attempt to assail this conspiracy of thought, and his present policy of reticence is perhaps the best he could observe under the circumstances.

The day in particular had been a trying one for him, and had held what, he maintains, was a peculiar series of coincidences. First of all, he had spent the whole morning in preparing his entry in the $10,000 *"City Beautiful"* contest that was being conducted jointly by several newspapers, two magazines, and a department store. The contest was to determine the best plan for an ideal city on the site of New York. Nothing, of course, could be done about removing the one that was already there, but a comparison of the actual city with the ideal one would arouse considerable interest and bring much publicity to all parties concerned. Furthermore, there were vague rumors that the Board of Estimate and Apportionment had more than a passing interest in the matter, and that if the winning plan appealed to it, it might take primary steps toward moulding little old New York into the ideal city.

ANY new thought that comes along that shows us what will happen hundreds of years hence, is always greeted with acclaim by the true scientifiction fan. Our new author presents us with such a situation in a novel dress, and at the same time, you will find that there is plenty of new scientifiction in this interesting story.

At any rate, Markham had reacted to the contest as a cat reacts to the smell of fish. He had set his fertile brain to work, and finally had evolved what he considered the ideal plan. But at the same time, as he later revealed, there was an undercurrent of suspicion that told him that this was not at all his ideal plan; that it was merely the best his brain could do under pressure; that at any time of the day or night there might leap to his cerebellum, when he least expected it, a vision of the ideal city, and that this city would be a thousandfold better than the one he had produced.

So he pigeon-holed the plan and drawings, expressing the fervent hope that the vision of the ideal might occur to him before the day, two weeks away, when the plans would have to be submitted.

He had intended to spend the afternoon of that day at a library, examining certain scientific and technical magazines, as well as catalogues, for new household devices and labor saving machinery which he would be able to incorporate into his future houses. He found several interesting ideas, but was soon bored and strolled into a cinema house. It was just his fortune to witness some fantasy that attempted to portray the city of the future. He could not help smiling, as he walked out of the theater and whenever he thought of the coincidence during supper. In the evening, he planted himself in the most comfortable armchair in his study, and, fortified by his pipe, prepared to enjoy an hour or two of reading. Not until he had opened the book did he notice that it was a pseudo-scientific novel by Verne, or Wells, or one of that class. And then he threw his head back and indulged in a long, hearty laugh.

His burst of mirth over, Markham felt that in view of the nature of his activities that day, he would rather not read that type of book, lest he develop what he feared most, a "one-track" mind. He was tired, however, and very comfortable, and the smoke of his pipe was beginning to form fascinating spirals in the air. The reader may recall a time when he was in a similar situation. Nevertheless, he finally persuaded himself that the book was no worse, or less desirable at that moment, than any other book. So he commenced to read.

We are to assume that at some point in his reading the print on the pages before him seemed to jumble together into a heap, and the pipe somehow slipped through his lips, and his eyelids acquired the weight of lead. His sense of time, his consciousness, everything, became hazy. He sensed that he was falling asleep. But he was not aware of any subsequent blankness. He seemed to regain full consciousness almost immediately.

HE was in a queer little room. It seemed to be an eight-foot cube, the hollow interior of the building block of some Brobdignagian infant. But while it was indeed eight feet in all three dimensions, it could hardly be called a cube, for the walls melted into one another and into the floor and ceiling in smooth curves that appealed to Markham's architectural nature. There was not an angle in the place. Against one wall was a neat little metal cot with a peculiar mattress which, he found by testing, was simply an inflated rubber pad tucked inside of an immaculate white sheet. That was the sum total of bed clothing. He was quick to surmise that as there were no coverings, warmth must be supplied in some other manner. He looked about him again, and was amazed to find that there were no heating device and no windows. With a scientific eye, he looked toward the bottom of the walls, and as he expected, he found, about eight inches above the level of the floor, a tiny row of holes extending all

around the room. Putting his hand to one, he felt a stream of warm, fresh air pouring silently and steadily into the room. He saw another row of holes an equal distance from the ceiling, and knew these to be for the exit of the exhausted and overheated air that rose to the top of the room. He also saw a hemisphere of frosted glass that looked as if it had been cemented into the ceiling, from which soft light streamed outward and downward.

He began to think about getting out, and looked for a door. There it was, entirely of metal and without panels. Its bottom formed the only break in the curve of the floor into the wall, but even so, wherever corners occurred, they had been beautifully rounded off. He approached. There were no visible hinges and no handle. Only a thin stream of light along the top, bottom, and left side told that it was a door at all. He pushed against it and it yielded. In a moment he had passed through, and it swung quickly back to its original position.

Markham glanced rapidly about and took in the features of the room he now found himself in. It was considerably larger than the chamber he had just left, and there was the same lack of right-angled corners. Up above were hemispherical illuminators, but these were not lit. Great floods of sunlight were pouring into the room through a single glass pane that formed almost the entire wall on his left. It took Markham little time to see that the glass was quartz, giving free access to the all-important ultra-violet rays. The wall opposite him, as well as the one through which he had come, held several of the queer hingeless, knobless doors. To his right——

Funny that he had not noticed him before. There, behind a long, narrow flat-topped desk sat a man, regarding him interestedly with sympathetic blue eyes. He was leaning on the desk with both elbows, a pen in his right hand. On his left was a file tray, on his right several rows of buttons and electric bulbs. But it was the clothing of the man behind the desk that first made Markham doubt that this experience was anything more than a casual dream of a super-modern hotel.

There were two visible garments. The inner was almost skintight, and apparently combined warmth with freedom of motion. The outer was a sort of loose cloak, that combined dignity with modesty. Both were dark blue in color, with a thin yellow braid running along the edges. The man's feet were visible beneath the desk, and at sight of them, Markham was compelled to display astonishment. They were encased in high-arched, open sandals, and the feet were not the corned, bunioned products of our civilization, but a shapely pair that could have served as models for the feet of a sculptured Apollo. Yet their possessor was apparently well past middle age.

There was silence for several minutes. The man at the desk, doubtlessly some sort of official, was unperturbed and seemed to have the situation well in hand, while Markham was so utterly astounded that he could not think of what to say or to ask first. At last the official dropped his gaze and pushed one of the buttons to his right on the desk. The bulb beside it flashed, and he picked up from its metal holder a black, round object that looked like an earphone. He put this to his ear and listened for a moment, then applied it to his lips. "A guide," he said. That was all, and he replaced the tiny phone in its holder. There was a click and the light in the bulb disappeared. The man resumed his writing as if Markham no longer existed.

Behind the official and to his left was a double door. Through this, a moment later, came a handsome young man, clad exactly like the official, but with a blue braid instead of the yellow. The older man looked up at him and smiled.

"You again, John?"

"Yes, sir," was the reply. "But I don't mind. It's interesting work."

The official resumed his writing and the young man turned to Markham. "Could you come with me, sir?"

Markham followed him out through the double door, and found himself in an immense corridor that was all of thirty feet in width. About one hundred feet to their left, the passage ended in a right angled turn, but on the right it extended for almost as far as the eye could see. It was well lit by those frosted glass illuminators. The side from which they had emerged was lined with double doors, but on the opposite side, Markham was surprised to see the glass display-windows of shops, a long row of them. As they walked silently along, they passed many people who were clad in garments similar to those of the official and of the guide, but an undecorated black in color. These evinced only a slight interest in the unusual clothing of the stranger. The latter, fascinated by the novel advertisements and the size of the shops (each one was three times as large as the average store he had known), noted that no two were alike as to product. One displayed canned, boxed, and bottled food exclusively, another fresh groceries and vegetables, a third stationery supplies, and so on. Markham wondered if the business world had finally reached a millenium and eliminated competition.

They passed through a single door, different in color from the others, ascended a short flight of steps, and emerged through another door upon a beautiful terrace, formed by a set-back in the building. The set-back was evenly fifty feet wide. The innermost ten feet formed a walk. The pavement, Markham noticed, was the same as that of the interior, a black substance that must have been poured out in a liquid state, and seemed to yield to the step. The outer forty feet of the set-back was a beautiful belt of grass, flower beds, and small shrubbery.

The guide reduced the pace to that of a stroll. "By your clothing I judge you to be of the early twentieth century," he ventured.

"The succession of wonders and novelties had beaten upon Markham with the remorseless precision of a trip hammer. Now he sensed a momentary let-up, and a flood of questions occurred to him

"I am, as you put it," he replied to the guide, "of the early twentieth century. But where, or when, am I now, and how did I get here?"

"This is New York, in the late part of the twenty-first century. You are what, is known here, as a 'visitor'."

"Undoubtedly," said Markham, with a slight attempt at sarcasm. "I could hardly call myself a native of this place, even if I *was* born on Manhattan."

The guide laughed, good naturedly. "What I meant," he explained, seriously, "is that you are of an entirely different period of time, or rather, of

history, for we are coming to doubt more and more that there is such a thing as time. How you were brought here—well, the advanced psychologists and hypnotists of our colleges have been very successful in their recent experiments. They think nothing of yanking out of the so-called past some person whose consciousness is *en rapport* with their united concentrations. Of late they do it not through any scientific interest but just for the practice, as a prank you might say; your case for instance."

This thought set Markham's brain reeling. There was something in the guide's tone that discouraged him from pursuing the matter. He dared not try to pursue it; he felt that he would go insane if he did. He thought of the situation of a psychologist who is anxious to know the mental reactions of a man falling from a cliff and yet does not care to make the experiment personally.

It was all too bizarre. He must not question anything; he must take everything for granted. He turned to the guide. "What is your name," he asked. "It will be more convenient to know."

"My name is John Warren, 12-C-6."

Markham was aghast. "What!" he exclaimed, "has mankind come to the number and filing-case stage so soon?"

"Not at all," was the laughing reply. "That is simply for purposes of mail and communication. The 12 means that my building is in the twelfth row from the south; the C means that it is the third row from the west; the 6 means that out of all the families named Warren in building 12-C, mine is considered Number 6."

"You spoke," said Markham, "or 'all the families named Warren,' and you have given a peculiar significance to the word 'building.' Is it that families of similar names are confined to separate houses?"

"Why, no. There are upwards of ten thousand people to a building, you know, and there are bound to be several familes of the same. . . ."

"Upwards of ten thousand people! What kind of buildings have you here?"

Warren smiled indulgently. "That will come later," he said.

All this time they had been following the same path. Now a low murmur seemed to be flowing up over the set-back from below. They neared a spot where a tiny walk led to a sort of fenced platform that overhung the edge of the flowery terrace. This they entered, and the guide invited Markham to look over the edge.

Wonders and wonders! It took the man from the twentieth century several minutes to grasp all that he saw.

Two hundred feet away was another building, a gigantic affair a quarter of a mile in length. There was a set-back on the same level as the one on which were Markham and his guide, and the former quickly assumed that the two structures were identical. The set-backs were above the fifteenth stories, and the buildings towered up for another ten stories. Twenty-five altogether. Not so much, Markham thought. Visionaries of his time had predicted edifices of a hundred stories and more; but these seemed to go in more for length, and perhaps for width.

He looked downward. At the street level the width of two hundred feet had been divided into a central band of one hundred feet and two outside bands of fifty feet each. The central portion was merely a great promenade, paved with the universal black substance that seemed to absorb the sunlight, rather than to reflect it back into the eyes. At intervals there were gigantic kiosks, leading probably to the buildings on either side. The flanking bands consisted of five endless moving platforms, each ten feet in width. The speed of these platforms increased with their distance from the promenade, so that the two outer ones moved at approximately twenty-five miles an hour. There were collapsible metal benches on the bands, while passage from one to another was facilitated by means of occasional hand-rails.

The scene was strangely familiar. The solution leaped to Markham's brain all at once.

"Why!" he cried, "such a street as this was described by a writer of my time!"*

"Then he was a prophet," said Warren, calmly. "It is not so easy to prophesy the inevitable."

"But," Markham continued, not having caught the guide's last remark, "he mentioned, I believe, streets a hundred yards in width and ten moving platforms in each direction, while you have here only five. Nevertheless the coincidence is . . ."

"We have such a street. It is called the Fifth Way, and was once known as Fifth Avenue. There are ten platforms in each direction, and the fastest move at a speed of nearly fifty miles an hour. But that is in the exact center of the island, and the outer platforms are used only by people desiring to travel from one end of the island to the other very quickly. As a man's residence, place of business, and recreation centers are all in the same building in most cases, there is very little cause for traffic between buildings. Two platforms for each direction, in fact, would be sufficient to handle the traffic, were it not that the more platforms there are the higher the speed that can be attained. Cross-town ways move at a lower level."

Fascinating as was the sight of the moving platforms and the hurrying, black-clad people, who seemed quite adroit at slipping from one band to another that moved about five miles an hour faster, Markham felt that he was delaying the "sight-seeing tour," for that was what he sensed their present walk to be. They regained the promenade and after a short distance, the guide led the way back inside. They came to a place in the huge corridor, near a corner of the building, where a peculiar track paralleled one wall. It was set deep into the floor, and was about two feet wide. Near the end of the track were half a dozen little trucks, their square platforms level with the floor. Each platform had at its sides two frail-looking metal railings.

Warren motioned Markham to the foremost platform, admonishing him to keep a tight grip on the railings. He seemed to doubt the stranger's ability to do this, however, for he took from a nearby rack a leather belt which he fastened around his waist and to both railings. He then mounted the platform behind, using no belt for himself, and indicated to Markham a tiny lever on the under side of the right-hand railing which he was to press.

Markham did so. The platform started slowly forward with a low rumble, and a similar sound from behind apprised him that the guide was fol-

*H. G. Wells, in "When the Sleeper Wakes."

lowing. Suddenly he felt his feet shoot out from under him, and there was a sensation as of being shot from a gun. This lasted an instant and then his position resumed the vertical and his momentum slackened rapidly but without any unpleasant sensations. Looking about him, he found himself in a sort of glass roofed, glass walled shed. The platform was trundling toward the end of the track. He released his belt and dismounted.

"What was that?" he demanded breathlessly of Warren, who had followed immediately.

"A high speed escalator," the guide explained. "The platforms move forward and are caught by hooks in a rapidly revolving belt. At the end of the incline they are released and are slowed down by compressed air pressure. We have climbed ten stories and are now on the roof."

They emerged from the shed and Markham found that it was so. They were on another black-paved promenade. Running to one side he saw, far below, the terrace they had just quitted, and abysmally farther down, the street. He ran to the other side, and was amazed to see, at about the same height as the terrace on the exterior, a park! It was square, conforming to the shape of the building, and something over three hundred yards square in dimension. In the center, an ornate fountain was hurling rainbow-hued water high into the air and catching it again in a marble pool. Tiny paths radiated from the fountain to the sides, and numerous children's playgrounds nestled in the shadows of the ten-story walls. But predominating over the whole pleasant scene was a color little associated with modern cities and not at all associated with visionary cities of the future—the green of well-kept lawns and trees.

And as they moved slowly along, stopping from time to time to watch the playing children and the chatting housewives, Warren explained the construction of the buildings.

They were all alike, square in shape, measuring about a quarter of a mile on each side, and twenty-five stories in height. The upper ten stories were purely residential, the apartments ranging in size from single rooms to large suites. The size of the suites depended strictly on that of the family, and not on its means. The lower fifteen stories were taken up with offices, schools, and shops. On the interior of the square, its surface level with the sixteenth story, was a twenty feet layer of soil, supported on a massive roof of steel and concrete. Below this roof, and down to the street level, were such institutions as did not require the light of day, including gymnasia, auditoria, theaters, and houses of worship. There were three more stories below the street level, one of which was entirely taken up with generators of the electricity used in heating, lighting, and operating all machinery throughout. Each building had its own electrical installation, run on power from a gigantic plant five miles north of Manhattan, which plant, in turn, received its current from Niagara Falls. The other two stories were used for storage and by the distribution system.

"And what is that?" asked Markham.

Warren smiled. The distribution system was now so commonplace that it was hard to believe that there ever was a time when it did not exist. Over across the Hudson was the huge distribution Center, where were received food products from the West and South and clothing and manufactured goods from the great Factory Cities at Niagara Falls and along the Mississippi. From this center an intricate system of pneumatic tubes spread under the Hudson and into Manhattan, an individual tube for each of the scores of buildings. Through these the food products and clothing and manufactured goods were shot in great containers to the cellar stations, from which they were relayed through a smaller system to the shops.

The noise from the moving ways far below had diminished considerably. The number of people on the promenades, both on the roofs and on the setbacks, had increased as more and more people, their day's work done, were trying to get in a last walk by the rays of the setting sun. The two men came to a corner of the building, where Markham saw that the path on which they moved, was connected to the corresponding paths on the two adjacent buildings by slender bridges of cantilever construction. They proceeded across one of them, the man from the twentieth century conquering by sheer mental effort the dizziness that threatened him.

"I have it!" he exclaimed suddenly. "Something seemed queer, something bothered me when I looked at the streets, and I have just realized what it was. I have not seen any automobiles."

Warren was puzzled for a moment. "Automobiles," he murmured, "automobiles. . . . oh! You mean gasoline surface vehicles!"

"Yes," said Markham. "Where are they?"

"There are none."

"What! You mean to tell me that there are no more automobiles? Why, in my time New York was being carved to suit them. Streets were being widened, sidewalks were being narrowed, residences were being torn down ruthlessly to make streets and cross streets for them. Skyscraping garages in the business districts were being contemplated and built. Nearly every family had an auto, and manufacturers were trying to convince them that they needed two. And now, less than two hundred years later, you say that there are no more automobiles. Impossible!" He almost felt hurt.

"As might have been foreseen," said Warren, calmly, "the whole industry that was growing so abnormally, fell in one crash. Around 1975, a growing shortage of petroleum, that the manufacturers were trying desperately to keep under cover, could no longer be concealed. There were terrible riots and mob scenes in New York, Chicago, Detroit, and in fact all over the globe. In a thousand cities, useless automobiles were piled up in the streets and burnt. The plants of the two greatest manufacturers were mobbed and razed to the ground. For a month the United States suffered a complete chaos. Then things gradually adjusted themselves. New oil fields were subsequently discovered, and an efficient substitute for gasoline was produced synthetically by an experimental chemist, but the gasoline car never regained the pinnacle it had held before the chaos."

"Why not?" asked Markham.

"You have said," began Warren, apparently irrelevantly, "that the plans of whole cities were being changed to suit the convenience of the automobiles; that houses were being torn down, playgrounds bisected by roads, parks destroyed by the fumes of the gasoline and pedestrians crowded to the walls or killed by the score; was it not so?"

"Yes," Markham conceded, but . . ."

"The duration of houses was halved by the constant vibration of passing trucks; the manufacturers, in feverish competition, were making the cars cheaper and cheaper, and more and more defective; forty percent of the men at the wheels were unfit to drive, yet did so, thanks to incompetent laws; the roads were choked with gaudy hire-cars, called, I believe, taxicabs, driven by men who, lured by the profits, had obtained licenses after a minimum number of lessons and no experience whatever; men who after a day's work were mere automatons and incapable of being entrusted with the human lives they were responsible for; was it not so?"

"Yes, yes," agreed Markham. The facts were all undeniable, yet it was the least bit irritating to have them served up to him in this gatling-gun fashion. His irritation, unknown to him, was based upon a human and excusable pride in his own times as contrasted with these.

"Well," continued Warren, "the eyes of the people, heretofore blinded to these abortive conditions, were opened to them by the chaos. The automobile no longer had the same significance; no longer seemed so necessary, or rather, so desirable in view of the conditions that accompanied it. The manufacture of the cars declined, ceased to be profitable, and in time stopped altogether. Today we have a form of surface vehicle, used solely for pleasure, one that you would hardly recognize.

"Our 'roads' consist of parallel metal tracks, twenty feet apart, each a foot in width. The vehicles are forty feet in length, fifteen in width, and gyroscopic, balancing on two huge rubber-tired wheels. They are known colloquially as 'capsules,' for the body consists of a capsule-shaped unbreakable quartz glass. It is blown into the standard shape, and holes are pierced for entrance and ventilation. The cars are comfortably furnished and self-operating, for they draw power by roller contacts and trolleys you might call them, from the metal track to which they are held by a sort of electro-magnetism. Automatic safety devices stop the car as soon as it comes within fifty feet of another. Anyone desiring to use one of the capsules goes across the Hudson to the depot and hires one. It bowls along over hill and dale, maintaining an even speed of fifty miles an hour."

"Fifty miles an hour!" exclaimed Markham. "Is that considered a proper speed for a pleasure ride?"

"Certainly," said Warren. "It is just the right speed, once all responsibility and care of operation are removed. Besides, you forget that the world advances. One hundred years before your time, twenty miles an hour was considered tempting friction."

"True," Markham acknowledged.

So absorbed had he been in the conversation that he had kept his eyes on the pavement before him for most of the time. They had been strolling northward. Now his eyes, raised for the first time, encountered a vast structure a mile away, that seemed to fill the entire quarter from horizon to zenith.

"The New York Tower," explained Warren. "The only real skyscraper it has been deemed necessary to have. It is not hollow, but a solid structure, having, as you see, pyramidal setbacks. It is not as wide as the other buildings, but together with the great plaza and gardens that surround it, occupies the same space that four of them would occupy. It is one hundred stories in height, and contains all the executive, legislative, and judicial offices of the municipal and state governments, and also the local branches of the various federal departments. This may seem strange to you, but the duties of government have been considerably changed and reduced. The number of municipal ordinances, for instance, is only about one-third what it was in your time. The cellar of the Tower contains the Post Office, from which letters and packages are distributed by pneumatic tubes and tunnels to the branch Post Offices in each building."

He referred to his wrist-watch, a queer one-handed device. "Ah, yes. In a moment you will see something interesting. Watch the top of the Tower."

Markham watched. Soon he saw a gigantic affair, resembling a net, rise slowly into the air, lifted by four balloons. Taking shape, it resolved into a great square funnel of netted fabric, the open mouth of which was fully five hundred feet above the top of the tower, to which it was connected by a slender net-work chute. The balloons were at the corners.

"Now," said the guide, "look to the west."

From that direction a large stream-lined monoplane was splitting the air in straight, unhalted flight. It flew faster than Markham had ever seen an airplane go before. As it passed above the funnel, it released a large sack, which dropped down through the chute into the building proper. The monoplane kept on toward the east, seeming to descend.

"The Western Mail," said Warren. "At present the flight from San Francisco takes ten hours, but that will be remedied within fifteen years, by which time the Transcontinental Pneumatic will be completed."

". . . the flight from San Francisco takes ten hours, but that will be remedied . . ." The phrase rang through Markham's brain, moving him to alternate spells of laughter and wonderment. These people seemed to have the most awful conception of time and speed. He now feared to comment or to express admiration for what Warren regarded as the commonplace, lest he should reveal his "provincialism."

"Look again," cried Warren, "this time to the east."

Far off in the heavens a tiny silver shape, resembling a minnow in a limpid pool, was darting toward them, descending as it came. In a few minutes Markham saw that it was a dirigible, much the same as those of his time, but somewhat larger. The cabin was a long structure that fitted snugly against the gas bag, like a great keel. The advantages of this arrangement over that of the half-dozen separated cabins and engines he was used to, as to decreased wind-resistance and increased ease of operation, were obvious to Markham. He surmised from the size of the cabin that a new lifting compound was employed, and found by asking Warren that it was so

As it approached, heading apparently for the New York Tower, his attention was attracted to a construction at the northwest corner of the roof of that building. It was a vertical shaft of metal bars, reaching one hundred feet into the air. At its top was a jumble of wheels, gears, and cables. The airship dropped a weighted cable which hooked into the top of this structure, and as it floated past, the cable became taut and the ship was slowly drawn down to the open metal shaft. And then Markham could

hardly suppress a thrill of pride, such as overcame him when he had seen his first house completed; for the top of the shaft fitted neatly *into* the floor of the airship cabin, and he could see a tiny car run swiftly up the shaft and into the cabin itself. It was all an idea which he had conceived and discussed often with his fellow club members, the device of a mooring mast, which would extend into a hole in an airship, so that an elevator in the shaft would rise level with the cabin floor. But they had laughed at him, and here it was, a wonderful reality. A moment later he saw the car descend, laden with people.

"Tell me," he turned to Warren. "I am eager to know the progress the world has made, especially in sociology and transportation. There was a deal of theorizing in my time, but from what I have seen I imagine that most of it either exaggerated or underestimated the truth. That dirigible, for instance. I imagine it is a transatlantic conveyance—" Warren nodded "—is all oceanic transportation like that?"

"No, indeed," said the guide. "The airships carry only mail, visiting and returning diplomats, and such people as can convince the authorities that their voyage requires all possible haste and are willing to pay the price. The passage from New York to Paris takes something over fifteen hours. Ordinary transoceanic traffic has changed radically. You may have noticed that there is nothing in sight resembling a port, or loading place for ships."

"I have remarked something like that," admitted Markham, "but I had thought it was due to the transcendency of airships."

"There was some little agitation for developing air navigation in your time," Warren went on, "which lasted until well after the Chaos of 1975. But these plans were ultimately shelved for many reasons, one of which was the unexpected development of means of surface transportation. Transatlantic voyagers now travel in gigantic covered sledges which have practically no draft at all, and are driven both by water screws and by air propellers. These ply between the great seaport at the eastern tip of Long Island and a recently developed port on the coast of France, taking no more than thirty hours for the trip. From the seaport, passengers are taken in ten minutes by pneumatic tubes to the Grand Depot, half a mile beneath the New York Tower. Freight boats are modeled more after the so-called ocean greyhounds of your time, but never take more than sixty hours to go to Europe. They also dock at the Eastern Seaport, but the freight is shot by tube to the Distribution Center.

"Inter-urban communication is carried on through the great pneumatic tubes. As I have told you, the Transcontinental Pneumatic is now under construction and will afford transportation between the coasts in from two to three hours."

"But surely the pneumatic tube isn't universal," suggested Markham.

"Certainly not," said Warren, "although in time it probably will be. In outlying sections we have the advanced equivalent of the railroad of your time. It is single railed, like the pleasure vehicles I have described to you, and also like those vehicles, the trains draw their power from the same compound rail they ride on. These rails are so constructed, with bridges, viaducts, and tunnels, that there is a minimum of curves and the altitude does not vary a hundred feet in as many miles. The result is a smooth speed of one hundred and fifty miles an hour. The Monorails, as they are called, are used throughout Australia, Africa, Asia, and South America, but no longer in Europe, and only in the less settled portions of North America."

They had turned back toward the south. The sun was hovering above the western horizon, a departing watchman taking his last look at a satisfied and satisfactory world. There was a growing chill in the air.

"Tell me of the people," said Markham. "How they live; are they happy? Surely with your advanced machinery, unemployment must present a problem."

"Ah," said Warren, "the solution of that problem is a matter on which we pride ourselves. Let me explain. We assume that two men, working eight hours with hand tools, can complete a piece of work in that time. A machine is invented to do the work of both men in the same time, so that only one is now needed to handle the machine. In your time, one of those men would have handled the machine, and the other would have starved. Today, the men would each work four hours at handling the machine, and both would be happy."

"I see," said Markham. "As the efficiency of your machinery increases you divide the time of labor among the number of workers displaced by the machine. It is wonderful, almost ideal, but it never would have worked in my age. The spare time would have hung heavy on our hands."

"That," explained Warren, "is a matter of evolution. We spend this 'spare time' in reading, in harmless and beneficial amusement, and the pursuit of the arts and sciences. The world has advanced tremendously in that respect."

"Community life has also undergone radical changes. There are today in the United States only fifteen cities, similar in appearance to this, except for differences based on climate, population, and regional architecture. Each city has its standardized buildings and its municipal tower, some follow the pure checkerboard design, like New York, and some are radial, like Washington. Five cities, New York, Chicago, San Francisco, St. Louis, and New Orleans, have a population of over ten million. The others all have over five. There are an additional ten million living in the half-dozen nameless Factory Cities, and twenty-five million more scattered throughout the land. These last are the food makers, the backbone of the country. All the land outside the cities is either national parkland or else under cultivation, except for a few suburbs of a strictly residential character in the neighborhood of the larger cities. The twenty-five million are served by the Monorails and by private airplanes; they are forbidden by the government to organize into communities or mutual benefit associations, so that they regard themselves as a whole and are doubtlessly happier that way."

Somehow they had stopped to lean on the narrow railing of a path that bridged the abyss between two buildings and watch Long Island bathed in the last rays of the sun. Where once had thrived the growing borough of Brooklyn was now a beautiful parkland of close-cropped lawn, reddening trees, and scattered residences and bungalows that stretched away to the east as far as Markham could see. What Warren had said was true; there was not a single building of urban character outside of the island of

Manhattan, although much land had been added to the island itself. There were not even bridges. Brooklyn, Staten Island, New Jersey, the land to the north, all were a little paradise.

"*It* is wonderful," said Markham.

The sun out of sight, they turned southward once more. "We must get back to 12-C," said Warren. "I shall present you to the Captain of the Welfare Office where you first found yourself." They walked the length of a building and out upon another precarious bridge. Snowflakes began to drift down upon them in increasing numbers. The black pavement absorbed the moist flakes, but in the process there was formed a thin watery surface which the shoes of the man from the twentieth century were not qualified to cope with. A group of people approached them, head down to avoid the north wind, and Markham lurched to one side to prevent their running into him.

His lurch carried him clean through the railing. He heard a cry of dismay from Warren, and then he was hurtling headfirst down the twenty-five story depth. He saw the moving, white-coated ways rushing up to meet him.

* * *

He awoke, with a feeling of stiffness, on the floor before the arm chair in which he last remembered himself. His pet poodle was licking his face, and a steady gust of wind was blowing through the open door. Formerly a student of dream phenomena, Markham recognized the circumstances which had lent such fearsome realism to that last part of his dream. The wind from behind him, as that north wind had been, the white poodle, who, running back and forth as he had tumbled from the chair, had given the fleeting impression of white moving ways, and the tumble itself. Yes, it had all been a dream, however strange and wonderful.

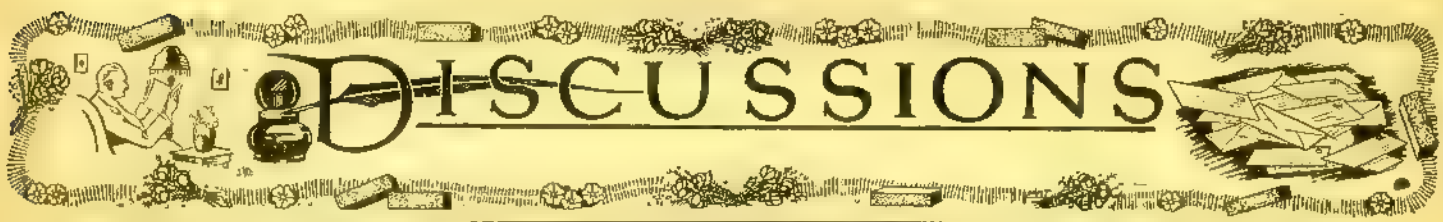
The reader may be interested in subsequent events.

Inspired by his vision, Markham ran to his desk, withdrew his plan from its pigeonhole, and tore it to bits. He then sat down and worked far into the night on this other plan, which had come to him much as he had expected it to come. He modified it considerably, but the principles remained the same. He suggested the uniformity of buildings, all twenty-five stories in height and a quarter of a mile square, with a set-back at the fifteenth story and a park on the interior. He suggested the two hundred feet streets, but lest he seem too radical, he described them for automobile traffic. Finally, he suggested the great New York Tower, with its government offices, giant Post Offices, and dirigible mooring mast.

The plan that won the contest was a fanciful thing, embodying towering skyscrapers in artistic shapes, no two of which were alike, and the uses of which were not quite clear. What was probably the winning factor was the advanced suggestion of an airplane hangar and landing platform on every roof. Markham's entry was returned courteously, with the criticism that it was a "highly improbable and impractical combination of the too fanciful and the too conservative."

So Markham, to all extents, has abandoned his visions, but as creative architect he has become the most outstanding worker in that gradual scientific and civic evolution which never can be covered at one jump.

THE END



In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

A SEVERE IF YOUTHFUL CRITIC

Editor, AMAZING STORIES

Although I read all kinds of amazing stories, *Lakh Dal, Destroyer of Souls* is about the most amazing story I have ever read. In my opinion it is the working of a disordered mind. The author must have cuckoo birds on his aerial (or maybe the rays of the machine were directed at him). Enough of that, however, for I must hurry with this letter. Nevertheless, I don't see how the rays of our satellite would make a man bereft of his reason. It only makes a dog bark (maybe he is barking at something else), and has no effect at all on people. On the other hand, maybe they have no effect on people because of their superior mind. However, if they were in quantity they might have some effect on humans, but nevertheless I think that the story is highly improbable.

Now for the story *Ten Million Miles Sunward*. If this story had really happened, there would no longer be any earth, because it was stated in Newton's law that "A body once in motion must be stopped by some outside force or it will continue forever in the same direction." Therefore I say that even if the axis of the earth was changed, the earth would continue in the same orbit.

The *Master of the World* was pretty good, but I liked *Baron Münchhausen's Scientific Adventures* best of all. There is a streak of humor, a streak of truth, and some lies, but I liked them anyway.

I am a great enthusiast as regards this magazine, and I think that a copy should come out every two weeks. Why not ask all the readers if they want it a monthly or semi-monthly? I think most of them would agree on a semi-monthly.

Robert Hutchins,
401 Tiffin St., Des Moines, Iowa.

P. S.—I think (know) that I can write a better story than *Ten Million Miles Sunward*, even if I am only thirteen years old. Nevertheless I am in 9A at school, take science and will take it as long as possible. Down with Latin!

R. H.

[We are always glad to hear from our younger readers. One characteristic thing which we have noticed is that their criticisms are more unmerciful than those of our more mature correspondents. In the April issue you will find a note by an eminent authority on the error in the story of *Ten Million Miles Sunward*. The general idea is that to affect the motion of the earth, some external force would have to be applied, and while the rushing of the water through the canals might be taken as an outside force, the amount of that force would be so trivial as to make the effect absolutely imperceptible. As regards the frequency of the publication of AMAZING STORIES, our readers seem much divided on this point. Many of our readers feel that our new Quarterly furnishes a good compromise.

If you want to try a hand at writing a story, we will be glad to give it the same consideration that we give to others. But it would probably do better for you to wait a few years. For whatever you think of adult humanity, there is no doubt that at the proper age, time mellows the character and experience rubs off some of our corners. You have a very high rank for your age in school, but if you will take one piece of advice from us, you will thank us in the future. Do not say "Down with Latin." If you will work hard at it, it will do you a great deal of good; it will mean a lot to you, for it will help you with English; and incidentally will teach you to "plug."—EDITOR.]

A LAWYER'S VIEWS ON AMAZING STORIES

Editor, AMAZING STORIES:

I have read your magazine for about 18 months and think that it exactly fills a vacant place in magazine literature—that is, the place which was vacant.

Your discussion column is very interesting in that so many people show themselves up by considering their own pleasure and not showing a spirit of co-operation. They seem to feel that if it does not suit them, then whosoever would dare read that particular article is an imbecile or an idiot. Frankly speaking, people with such ideas as that are almost in one of the classes themselves.

It is true there are some stories I do not like, but taken as a whole the magazine is wonderful, and even those I do not like are undoubtedly the favorite of some person whose hobby in science is thus illustrated, and I am glad to know that someone else has a chance at something that suits his whims.

Poor old H. G. Wells has certainly got his share of criticism. Personally, I, too, agree that his stories are great, but I do believe that a vote among his readers would show him that while he is highly approved in general, it would be a still greater approval—even by his present admirers—if he would leave out some tedious details. In other words, while we like the stories, we would love them if he would not make us so tired of tedious details that we almost lose interest before he gets down to the point.

I have enjoyed many of the stories, but I believe that *The Moon Pool* was the best I have ever read in your magazine. Not merely because of the folk lore it contained, but because of the beautiful

(*Continued on page* 180)

THE MASTER ANTS

By FRANCIS FLAGG

(*Concluded*)

or ninety, penniless, unknown, in charge of a middle-aged woman. What good would that do either you or Theda? Besides, there is something else to consider. Do you realize that it was only by a miracle we escaped death when our Time Machine fell to pieces on the plain out there? Yet there is no way of returning a machine to 1926, save by hurling it back in time until it, too, disintegrates from old age!"

As I stood glaring at him in horror, there came the terrified clamor of hundreds of voices.

"Look!" cried a woman's shrill voice. "Look!"

Far out on the plain had risen what seemed an eddying cloud. Even as we gazed, petrified, there rose another, and yet another, until the sky was black with them. The Master Ants were coming to the attack!

Of the ghastly fight which took place on the roof, there is little to say. The millions of insects, with their winged steeds, simply fell upon the giant ray cone and smothered it to ineffectiveness with their charred bodies. Nearly two hundred of the Scientians fell in battle, stung to death by the sword-like stings of the flying insects. The remainder fled panic-stricken from the roof into the interior of the Castle and sealed up the entrance with impregnable composite metal. By means of the transparent ray it is possible to look through the walls and ceiling. The once fair garden is being eaten and destroyed. The fruit trees are crumbling into dust. All that is vulnerable is a decaying wreck. As I look at the scene of unutterable desolation, despair grips my heart, and a wild desire to strap myself in the Time Machine and quit this terrible future for the past, almost overwhelms me. But that is impossible. There is nothing to do but stay and face whatever the future holds in store for us. Soltano maintains that our situation is not yet hopeless. Those Scientians amaze me. Their courage and optimism in the face of disaster are wonderful. Now I know what their religion is: It is an abiding faith in the power of their science to aid and uphold them. The Professor tells me of an intricate arrangement for supplying us with air; I do not understand it yet very well, but it is made clear to me that we can live in the interior of the Castle indefinitely. Water and synthetic foods can be made. Meantime, in the splendidly equipped laboratories and machine shops, the scientists and inventors are rushing forward experiments which may release, they say, the energy in the atom and give us possession of weapons which will destroy the ants and return the lordship of America to man. But as to this, I do not know; I hardly dare hope. Theda leans over me and presses her soft cheek against mine, and though I do not feel at all heroic, I am comforted and made stronger by her love.

Escape or help seems impossible. Nevertheless, I am going to tie this manuscript in the Time Machine, which stands ready at my side, and send it back to the period I have left forever. I repeat my hope that it will fall into the hands of intelligent people and that its contents will be made known to the public. It may be that we shall overcome the ants in the inevitable final conflict between men and insects. In that case we will try to communicate with the twentieth century again. If not, then we bid a final farewell to the people of 1926.

Signed: PROFESSOR JOHN REUBENS,
RAYMOND BENT.

What Is To Be Done with the Document?

THE nationally known lawyer laid down the incredible document. For a moment there was complete silence in the room. Finally the President of the University spoke.

"I suppose you wish our advice as to what disposition to make of this . . . this. . . ."

"Exactly," returned the lawyer. "I am positive it is a hoax; and yet. . . ."

"And yet," finished the Doctor of Science, " 'there are more things in heaven and earth, Horatio, than are dreamt of in your philosophy!' as Hamlet said!"

The ordinary M. D. coughed. "There is something fishy about this whole affair," he said, "casting no reflections on our host, whose account of how the manuscript came into his possession I believe absolutely. Perhaps someone is trying to cover up the fact that twenty thousand dollars disappeared. But that doesn't sound plausible either. My advice is to lock the manuscript up in a safe. Time enough to publish its contents to the world if any queer happenings should occur—in South America, for instance."

The five other men gave hearty approval to this plan, and there the matter rests, except that there are at least three men in Berkeley, California, who carefully scan the press every day for any strange news from Latin America.

THE END

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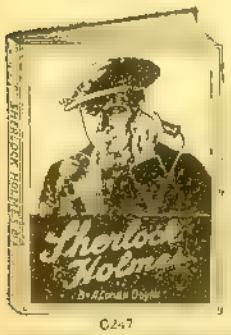

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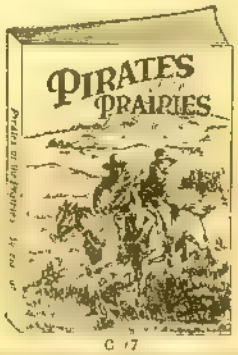

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The Shawnee Witch. D
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Boys' Detective

..N185 The Little Colonel D
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[illegible] Frank D
C98 Life in New York D
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N210 A Remarkable Shadow. D
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.C308 Mysterious Mr. Sabin. Oppenheim. B
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B103 How to Make [illegible] E
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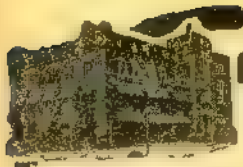

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language used. I do not remember its author's name, but I do know that he can use language to the extent that we might say that he "said it with flowers." I see a comment by one writer in "Discussions" in the last issue about the magazine catering to those whose intellect is weak, or those who are childish. He did not use the exact words, but conveyed the meaning. I might suggest to all of such a mental capacity and ideas pertaining to that meaning, that if they will also pursue the current topics of inventions they will be enormously surprised at the actual patents on things only recently placed as fiction in AMAZING STORIES. Take for instance the story about the world below the Infra-Red Rays, which sounded foolish to those unbelievers, but not to yours truly, and now there is an article in last Sunday's *Atlanta Constitution* about a machine which transposes vision picked up by the Infra-Red Rays, and so arranges it that the human eye can see it—and picks up scenes in the dark. Foolish, eh, well it's good science, so says the New York Police Department.

This letter is more helter-skelter than I expected, because of interruptions to discuss business with my clients while writing it. Maybap I can do better next time, if this letter be so lucky as to get into print.

Just one more thrust at those spineless brains that claim AMAZING STORIES are weak and for weaklings. I have found that the reasoning capacity of those in "Discussions" have been awakened to new ideas and loftier ideals by perusal of these same stories, and if we be able to make some poor human being think in a line of progression we have most certainly attained a point in the scale of benefit and good will to man, that we should be able to say to each of our editors of AMAZING STORIES and worthy contributors, "Well done, thou good and faithful servant."

C. S. Bennette,
1203 1-2 Broad St., Columbus, Ga.

[The writer of this interesting communication is the senior member of a Columbus, Ga. law firm and, like so many others of our readers' letters, it tells its own story. Bennette's clients, with all their interruptions, did not prevent him from writing a particularly good and well-put letter. It interests us to see the commendation which he and many others bestow upon *The Moon Pool*. It had a touch of travel and geography about it, a touch of psychology, especially in the Irishman, and quite a deep character study. We feel that we publish letters enough to show how well taken it is when we receive such good letters as the above.—EDITOR.]

THE PROPOSED SCIENCE CLUB—A CONSTRUCTIVE LETTER WITH A GOOD OUTLINE OF WORK

Editor, AMAZING STORIES

Being a regular reader of AMAZING STORIES, I have often intended to write to your Discussions Department about the organization of the Science Club, which has been the subject of discussion for some time. This idea has interested me very much, and I would be greatly pleased to see it developed into something worth while. I thought at first that you would take hold of it, suggest a plan of organization and get it started, following the line of development used by other publications which have fostered organizations of readers for various purposes, but it is now apparent that you are determined to leave it entirely in the hands of those of your readers who are interested enough to go ahead and organize the Science Club, and on careful consideration this plan will prove to be best. A club so organized will be best because it will be strong and able to stand on its own feet; it will have a backbone composed of those who have the initiative to go ahead and organize it. There must be a number of such persons among the readers of AMAZING STORIES, and I hope to see them get into action soon.

A plan of action which suggests itself to me is this, which I submit for the consideration of all who are interested.

If you are interested in organizing the Science Club, insert a small ad in the "Personal" column of your local newspaper reading something like this: 'Anyone interested in organization of Science Club communicate with ————.'

That would be a very inexpensive way of getting in touch with those in the vicinity who were interested, and it will get results.

Instead of writing immediately to all who reply to your ad, get in touch with a few, who will help you bear the expense of communication with the others. Get out a mimeograph letter if there are enough replies to warrant it.

Issue a call for a meeting, sending it to all who reply to your ad. Those who attend the meeting will authorize one of their number to write a letter to the Editor of AMAZING STORIES, outlining their ideas regarding the nature of the permanent organization. These ideas should be stated as certain clearly defined points, which can be collated and classified by the Editor. When all the letters from the various meetings are examined, it is quite certain that the points outlined in each will be duplications of those outlined in others. The Editor can then collate the suggestions and send to the corresponding secretaries of the branches a list of the points suggested by all the letters. Another meeting can be called to vote on acceptance or rejection of each point as stated in the Editor's list, and the ballots will be returned to the Editor, who will tabulate the returns and determine therefrom the final form of the organization.

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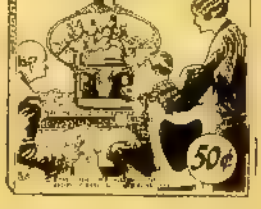
50¢  50¢

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I hope I have made my plan clear and concise enough, as I would like to see some action!

I have read with interest the letter of Mr. Wines in the March issue regarding the Science Club, and while I am glad to see the interest he takes and am also delighted that a man of his type should be interested in the project, I am bound to agree with the Editor on the proposition of secrecy. That should be *out*, right from the start, for a number of reasons. For one, what good would the magazine be to a secret organization? The Editor has proffered the use of its pages, but the space would have to remain blank if the club were a secret society, nothing could be discussed. Another feature suggested by Mr. Wines requires careful consideration, and that is the establishment of laboratories, employment of scientists, attorneys, etc., ad lib. I would be the last to deny that the foundation of a good laboratory would be a fine foundation for such an organization, but it should not be a primary consideration at the time of organization. The first goal should be the organization of a Science Club for the discussion, locally in meetings and nationally in the pages of AMAZING STORIES of the ideas of the members on scientific matters, to the end that ideas might be [illegible] fertile soil and develop into a bountiful [illegible] greatest laboratory is the human mind.

Mr. Wine's suggestion that the branches be called "laboratories" is a good one, and I might add to that the suggestion of a motto for all the "laboratories," and the organization as a whole. It is an ancient French motto: *"Je l'ay emprins"* (I have undertaken).

D. MASON

[This letter requires no comment. The ideas which are contained in it are so clearly put and the details are so well given that it really looks as if something might yet be done about the Scientific Society. It seems too bad to let the subject drop when so many seem ripe and ready for it. We shall be glad to publish the results of any new movement of "Science Club" enthusiasts.—EDITOR.]

A LETTER OF THOUGHTFUL CRITICISM

Editor, AMAZING STORIES

At last, Mr. Editor, I am writing this letter to praise your superclassic, AMAZING STORIES, of which I am a charter reader. Secondly, I write this to take up my bludgeon on Mr. Wells' side of the argument. Anent *The War of the Worlds* story. Surely such splendidly-written material must appeal to anyone who truly knows and appreciates artful description. Wells merely uses his fine description to bring out the high-lights in his stories, the same way in which Mr. Merritt enhances the beauty of his *Moon Pool* with sparkling description. Nobody objected to Mr. Merritt's descriptive matter, because it moved along somewhat snappier" than Mr. Wells' description. Wells is a remarkable author, and I am sure his great popularity has not come about accidentally.

As for picking apart certain stories, and squabbling over trifling mechanical details, that's illiberal! There must be some "Esnesnon" now and then, a little fairy tale here and there, to keep our appetite for romance whetted. We must overlook the overdrawn and ridiculous situations, for there are so many delightful things that grow out of the occasional absurdities. I want to confess here that I swallowed Dr. Mentiroso, hook, sinker, *et al*, tail some of the boys declared him a phenomenal liar. I fail to get any edification or "kick" out of such stories as *The Undersea Express, The Star of Dead Love, The Machine Man of Ardathia, The Tide Projectile Transportation Co.*, and the detective tales. The latter are obvious and flat, carrying a "canned" flavor for me. Your illustrations are splendid as is. Mr. Paul catches the right inspiration, and, as an artist myself, I appreciate his cleverness. Your idea of the Quarterly is O. K., a nice compromise over the semi-monthly idea.

To date, the stories that have appealed to me the most are: *Off On a Comet, The Moon Metal, The Land That Time Forgot, Station X, Dr. Moreau's Island, The Malignant Entity, The Second Deluge, The Moon Pool, War of the Worlds, Around the Universe*, and kindred tales. I read all and each issue of AMAZING STORIES. That's only the half of it. I have read such as *Dr. Moreau's Island* and others two or three times. I consider myself a discriminating reader, so this must mean a high tribute to some of your authors' work. At any rate, Mr. Editor, I cannot give you any constructive advice further as to the conduct of your editorial work. I'm satisfied with your efforts as is, and I trust AMAZING STORIES will prosper as greatly as has your *Radio News* and other splendid publications. By the way, I read all of them excepting your Spanish one. I trust you have the patience to finish this.

CEO C. DICK,
2557 Edgar Ave., Wellston Sta., St. Louis, Mo.

[In spite of our modesty, we appreciate your calling AMAZING STORIES a super-classic. While it is interesting to find Mr. Wells defended, the great popularity which he has acquired seems to make such defence unnecessary. What you say about "Esnesnon" reminds us of the lines by an unknown writer:

"A little nonsense now and then
Is relished by the wisest men."

for most readers will know now that "Esnesnon" is nonsense spelled backwards. We think you take a proper view of the work of Mr. Paul. You must realize that to illustrate such stories as we give, requires a special ability on the part of the artist. We certainly appreciate your good wishes.—EDITOR.]

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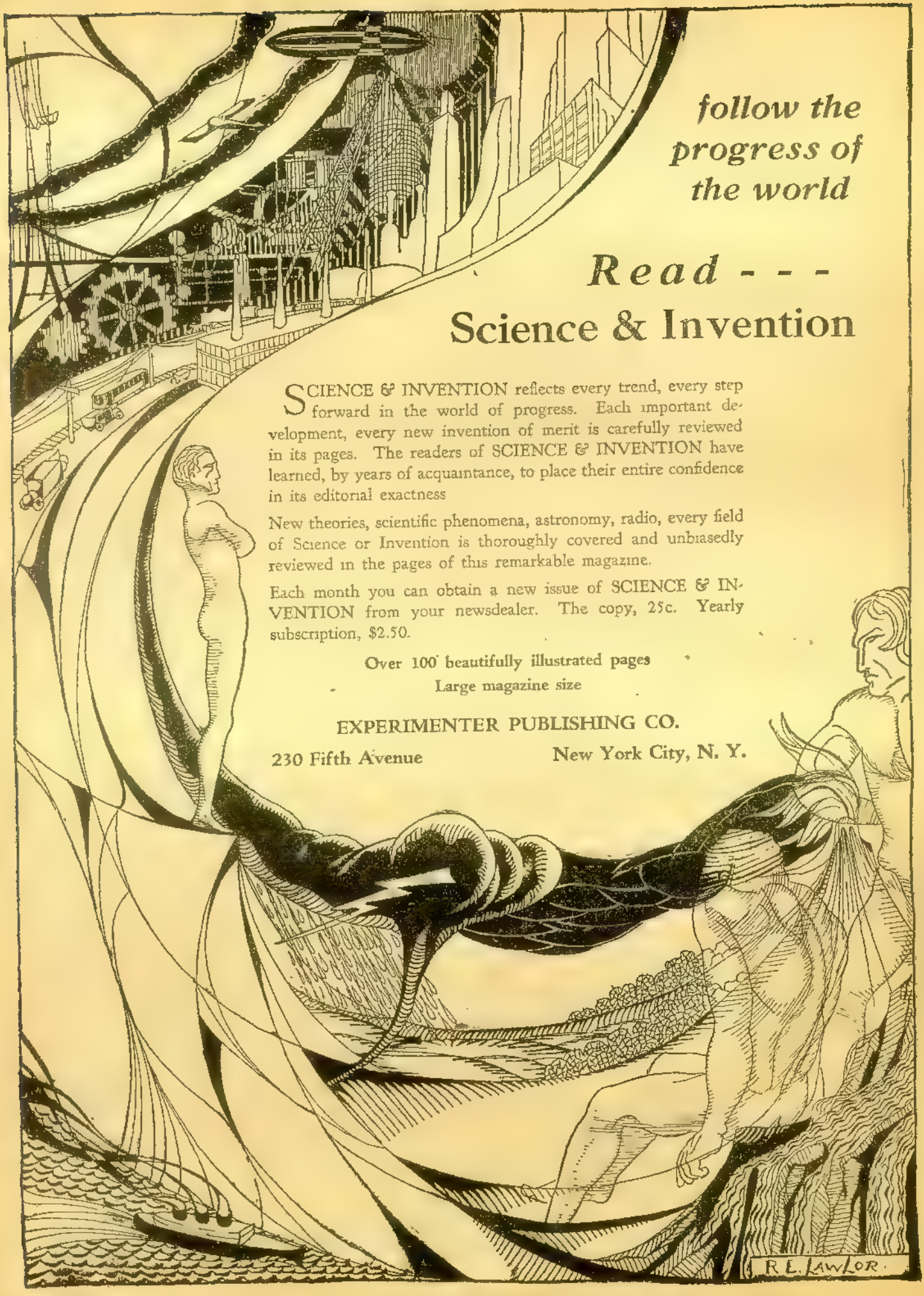

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SOME BRICKBATS AND OTHERS—A WORD FROM THE ANTIPODES

Editor AMAZING STORIES:

A few bouquets and brickbats from Australia.

I have read AMAZING STORIES from the first issue. It is the only magazine which appeals to my vivid imagination, and fills a long-felt want. I can't understand those who complain that AMAZING STORIES twice a month would cost too much. I would [illegible] published every day.

The [illegible] Mr. Paul are worthy of His [illegible] space to [illegible] illustr[illegible]

Now for a few brickbats.

Please cut out H. G. Wells, Jules Verne, and H. H. Simmons.

Taking Wells. The only two of his yarns which can really [illegible] *The War of the Worlds*. [illegible] the stories [illegible] is [illegible] *The War of the Worlds* is a back number and simply makes the modern reader feel sick. Please drop him.

[illegible] the public. He belongs to the bygone Victorian era with his long, [illegible] descriptions of [illegible] which he uses, but has learnt writing. leave a taste of [illegible]

[illegible] Verne and A. C. Doyle. Verne is right back. Mr. Simmons ought to be [illegible]. Why are there [illegible] AMAZING STORIES? Amazing! Scientifiction! Hear me laugh.

The only story that was up to the mark in AMAZING STORIES so far is [illegible], with *The Second Deluge* running a good second.

Mr. Merritt is a genius. *The People of the Pit* and [illegible] are great.

Other yarns [illegible] were *The Green Splotches, Star of Dead Love* and *The Mad Planet*. *The Mad Planet* contained the best science of any of these in my opinion.

The [illegible] Discoveries of Dr. Menturoso could have been called better, "The puerile vaporings of a diseased mind." If Dr. Menturoso went round [illegible] light, it [illegible] our [illegible] me in so doing. [illegible] a stove.

[illegible] even worse. [illegible] phenomenal [illegible] wonderful [illegible] to see a person and hear words spoken at the [illegible] Considering the relative speeds of light and [illegible] [illegible] fixes him to [illegible] when he goes [illegible] off at [illegible] seems to me to [illegible] sense. Sound could [illegible] assuming that it could, the intensity varies inversely as the square of the distance, so the sounds would be pretty feeble by the time they had traveled a thousand light years.

Now, Mr. Editor, I have a favor to ask. Do you think you could manage to publish *The Blind Spot*, by Austin Hall and Homer Eon Flint? This appeared in the *Argosy All-Story Weekly* about the middle of 1921. I only read the first instalment and have been consumed with curiosity ever since. It is a scientifiction story of the first order.

Other good yarns which would not be out of place in AMAZING STORIES are *The Planeteer* and *The King of Conserve Island*, by Homer Eon Flint (*Argosy All-Story*, 1917-18); a little collection of scientifiction stories under the names of *The Purple Sapphire, The Amphibian, Nordenholt's Millions* and *The Brass Bight*, by Jack Harrower.

Now, Mr. Editor, will you publish my name and let a few of these scientifiction lovers get in touch with me. Well, I close with a wish to see AMAZING STORIES doubled in size by advertisements, and published oftener. Please give that *Blind Spot* story a chance.

R. E. GRAHAM,
26 Parnell St., Strathfield, N. S. W., Aus.

[While we have headed your letter with the words "Some Brickbats," we observe that Mr. Paul is not a target. But do read the letters of our other readers and see how they admire the very stories which you dislike. Do you think that you could select stories to please everybody? In regards to Mr. Simmon's stories about *Hugo Innes* it is with a [illegible] you say 'hear me laugh.' As the humorist says, 'This is writ Sarkastick.' But you should have heard us laugh in good earnest when we first read them. We think they are very clever.

You are rather hard on Dr. Menturoso. We can assure you that the complete understanding of his story would imply the knowledge of the difference in time, which has played so important a part in the history of the world. It is on this that ocean navigation has been based, and there was a prize offered and eventually won for some method of determining the longitude of a ship at sea, which was solved by the invention of the marine chronometer to give the difference of time between the position of a ship at sea and a standard meridian such as that of Greenwich, England. This took numberless ships across the ocean and brought them safely to port. We note what you say about the *Blind Spot* and we shall consider it seriously. EDITOR.]

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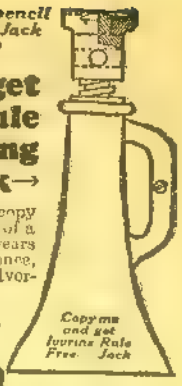

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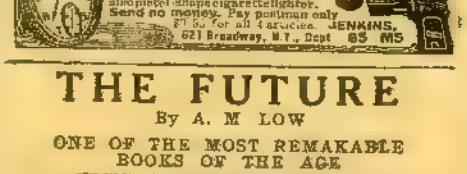

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A SEVERE YOUNG CRITIC

Editor, AMAZING STORIES:

I have been watching your discussions column for some time, and I would like to make comment on the criticisms contained therein.

Many of your readers do not consider a story good scientifiction unless an explanation is given of every episode containing science in any way, shape or manner. They do not take into consideration the fact that scientifiction usually contains feats that the writer has to evolve from his imagination. Therefore they must deviate from the usual path of science and employ sleight-of-mind tricks to mask their scientific deceptions. If a feasible and definite explanation was necessary for each scientific point, the writer would become so limited as to situations, etc., that the story would become dry and journalistic in aspect.

I heartily disapprove of scientific tales which contain romances. They sentimentalize the story to such an extent that it diminishes some of the scientific glamor, which rightly deserves uninterrupted notice.

Ten Million Miles Sunward, although erring in parts, is my idea of what good scientific fiction should be. It is absorbing to the nth degree and is a well systematized story working to the climax at the right conjunction.

Lakh Dahl, Destroyer of Souls, is undoubtedly the best scientific detective story you have ever printed. It has well planned situations and well distributed tense moments.

Baron Munchhausen's Scientific Adventures are so ridiculous that they are funny. Although I do not look forward to them each month, they nevertheless afford the comic element in your publication.

Sub-Satellite was fair, but was merely a repetition of the much tattered Moon story. The idea of the bullet, although at first glance appearing humorous, contained a lot of interesting science.

The Flowering of the Strange Orchid was a becalmed and stagnant piece of literature containing a lot of tommyrot probably inspired by Dumas' *The Black Tulip.* May you use the same amount of magazine space to better advantage in the near future.

I am thirteen years old and enjoy your magazine to the extreme. In my conception, AMAZING STORIES is a relief to the individual who likes scientific literature as the only resort one had before your periodical appeared was a limited amount of poor stories.

Since the first issue of AMAZING STORIES was put on the newsstands I have perused it with unabating interest each month. Hoping that your publication will continue to give such educational enjoyment, I remain,

ROBERT EISENBACH,
2135 Sacramento St., San Francisco, Cal.

[A green apple is not as much appreciated by the generality of mankind as one which has had time to ripen. Criticism, severe and scathing, from one who is a lad of thirteen years, will be looked back upon by the youthful writer in a few years, as far from ripe. We have received some astonishingly good communications from very young writers such as this one, but it certainly is interesting to see how much more definite they are in their views, than older writers who have learned that in this world it is not always safe to be sure about things, for it is often very hard by natural means to elicit the truth. One curious feature is that our writer, who is a correspondent severe in his views, states at the end that not only is he thirteen years old, but that he enjoys the magazine to the extreme. When he and the magazine are ten or twenty years older, we are sure he will take a broader view of things and not be quite so sure of himself. EDITOR.]

THE INTERNATIONAL SCIENCE CLUB

Editor, AMAZING STORIES:

I believe that the time has come when all those that are interested in forming the International Science Club, and I am sure that there are quite a number who are interested, should unite and get the club started.

The club, I believe, will help to form a closer relationship between the scientific thinking youths of the world. You must remember that the scientific thinking youth of today is the scientific leader of tomorrow.

I believe that the first thing we must do is to appoint a committee to draft a constitution and by-laws. As most of those who are interested in starting the club wrote to you, I do not believe there is anyone who is better suited than you are to appoint such a committee. I am sure that you will do that for the good of science and the club.

Well, so much about the club for this time.

I do hope you will print more stories which pertain to astronomy, as I find them all extremely interesting, for that is my favorite branch of science.

The poems that appear in AMAZING STORIES are real good. I don't think it would be wise to discontinue them.

HOLGER E. LINDGREN,
420 Eastside St., Olympia, Wash.

[This letter speaks for itself, it requires no comment as it stands. We took the liberty of omitting the list of what the appreciative writer considers the best stories that we have published. As these are fourteen in number, we felt that it came so near to approving all our efforts that we have modestly omitted his list from these columns. —EDITOR.]

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AN APPRECIATION OF OUR EFFORTS

Editor, AMAZING STORIES:

My favorite publications previous to your introducing AMAZING STORIES to the magazine field, were *Science and Invention, Popular Science,* and *All Story,* but I will let you guess as to which one I wait for now—rather impatiently, I must say, between the first and tenth of each month. AMAZING STORIES has certainly proved its merit as a magazine of the first order, a mother lode for the class of readers who are of a scientific or pro-scientific turn of mind. I had the honor of purchasing the first copy sold in the city of Hammond, Ind., and, of course, since then have not missed a copy. I saved all the old issues for quite a time, and then lent the stack to a new and enthusiastic reader, who "forgot" to return them. I'll trust no one any more with my AMAZING STORIES.

While your "Discussion" column is being racked and torn between two classes of readers—pro and anti—our esteemed friend, H. G. Wells, I'll just pick up the latest issue (or perhaps an earlier one) and re-read one of his excellent stories, most of which I had read several times before you printed them, in A. S. I do not like them all, it's true, but Wells, in common with Verne, wrote most of his stories years ago, consequently they are not as up-to-date as your usual run or type, as I should say.

Merritt's *Moon Pool,* Burrough's *Land That Time Forgot,* are old stories to me, but were re-read several times just the same.

I disremember if I read *The Girl in the Golden Atom* in your magazine or another one. Kindly enlighten me on this point.

Since several thousands of your readers howled long and loud over Verrill's *Dr. Mentroso,* I wonder what they will say about your own stories of Baron Münchhausen. I'm sure the Baron has it over Doctor Mentiroso when it comes to exaggerating the truth. Well, time will tell, and *truth* will out. Let's see who will be the victor in the battle of lies, from the readers' viewpoint. Reading the discussion column is a good-sized kick, and must be to you, too. But there is one consolation. You can rest assured that your chronic kickers and censoring critics must spend their quarter each month—otherwise, how will they have any theme on which to air their criticisms and complaints?

Your magazine as a monthly interests me more, as I have time to digest each story thoroughly. One might be rushed to much if it were a semi-monthly.

I have to thank you for hours of splendid reading.

JOSEPH GOLDSTEIN,
3863 W. Pine St., St. Louis, Mo.

[One point about Dr. Mentiroso and Baron Münchhausen is that both of them tell a lot of truth, despite their very obvious lies. We can assure our correspondents that the Baron's science was very closely followed up by the author and the gist of it is in its definite correctness. You'll find our ideas about Dr. Mentiroso stated in various places in these columns. He is well worth studying. Ask yourselves how much you know about the difference of time upon the earth.

We have not yet printed *The Girl of the Golden Atom.*

We have little to say in connection with your letter, which tells its story very clearly, but certainly an editor who is, in a sense, living for the magazine, is delighted to find it well thought of by such readers as you.—EDITOR.]

OUR "DISCUSSION CORRESPONDENTS" AMUSE THE WRITER

Editor, AMAZING STORIES:

I have just been sitting here holding my sides with laughter over the letters about our friend Dr. Mentiroso. That part from Wm. Etheridge: "Your magazine cannot survive on that basis, except with morons"; and then Donald L. Cumming's witty piece to the effect that the best part of the story was the end. Well, Mr. Editor, I'm just a junior in High, and may not rank much above a moron, but really I thought the story good, and at least it made me think more than any story I've read in the magazine so far. Anyway, I certainly agree that the "Discussions" is the best part of the magazine.

I want to extend a welcome to Harry Martin for his *Rice's Ray.* I think this is the most logical story about a "Space Ship" so far printed.

I have read your magazine for over a year now, look forward to every new copy, and read everything in them. I'm for more illustrations, but keep it a monthly, for I'm afraid you wouldn't have the same quality in more frequent issues.

I have nothing more to say except that I consider the *Moon Pool* the best story you have ever printed.

Remember me to the Doctor,

GEORGE P. CAMERON,
64 Broadway, Los Gatos, Cal.

[It is well to find that our correspondents of the seriously criticizing type operate to amuse one good-natured reader. While we are delighted to find our stories taken seriously and criticized from a serious viewpoint, it is well to be cheered up by a little appreciative good humor sometimes, and that is the clue to our appreciation of this letter from a high school junior, whom we emphatically deny to be a moron. We have given in several places in our Discussions Columns our views of Dr. Mentiroso. His name announces him a liar, but the story contains excellent matter concerning the difference of time, a subject which puzzles many.

How many realize, in crossing the ocean to Europe or back, that going one way they have about a 23-hour day and going the other way the day is about 25 hours long? Yet the voyagers adapt themselves instantly to the new time.

We find that the planetary stories are liked by our readers, and certainly *Rice's Ray* is an excellent example of this specific type of fiction.—EDITOR.]

READERS' VOTE OF PREFERENCE

Stories I Like:

(1) .....

.....

(2) .....

.....

(3) .....

.....

Stories I Do Not Like:

(2) .....

.....

(1) .....

.....

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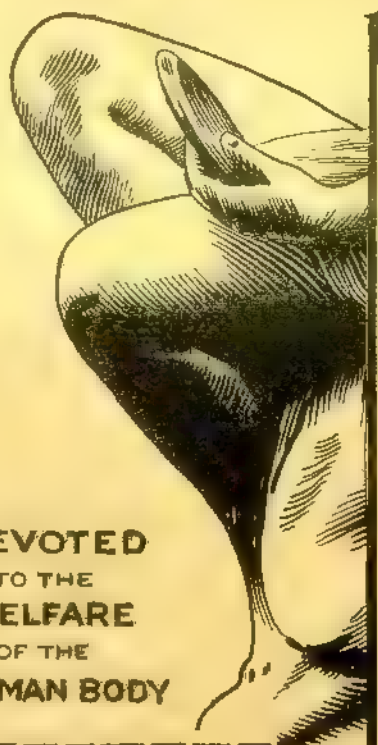

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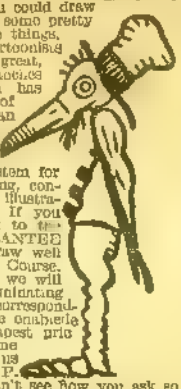

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IMPOSSIBLE THEMES ARE NOT INTERESTING, BUT WHAT ONES ARE IMPOSSIBLE?

Editor, AMAZING STORIES:

I've been a reader of your "mag" for over a year, and I believe you are entitled to some word of praise and criticism as well as a certain remark was made by one of your critics. The critic's remark is not reproachful, rather in behalf of your magazine, yet it contains a certain word that has led me to write this letter. I quote the remark: Impossible themes are very interesting.

Now my idea is, impossible themes are *not* interesting. Perhaps you will think that I dislike the majority of your stories on this account, but on the contrary I do not. And why? For the simple reason that with the exception of one, none of your themes are absolutely impossible. The one exception is the so-called "Time Traveler" or any contraption that makes it possible for our physical selves to mingle with the peoples of the past or future. I need not go into detail why I believe the impossibility of this theory or rather nightmare, since your critics have given as excellent reasons as can possibly be made.

As for your other stories, although some are more feasible than others, as I said before, none are impossible. The most fascinating stories are those of unknown lands, planes and planets, and their inhabitants, on whom the author can speculate as to the shape of body and features. On the tail of these tales are such as *The Revolt of the Pedestrians*, in which we live in the future in an age that is recuperating from some calamity. Stories of inventions usually bring up the rear, although quite often one is found that is very interesting.

My reaction to such a story as Jules Verne's *Master of the World* gives me an idea how people a few hundred years from now will look upon some of our scientific feats of today. I smile when I notice the enthusiasm of Jules Verne when he describes the speed of the "Terror." Today we have planes capable of over 250 miles per hour and we can build automobiles of the same speed. Yet, when someone says that within a hundred years we may be traveling as fast as the rotation of the earth, we have a skeptic on every hand. Gradually, though, since the advent of the radio and vitaphone, the birth of television and the new developments in aviation, the ignoramuses are waking to the fact that skeptics are a hindrance to the advancement of civilization, and that many things considered impossible are only so because of lack of investigation and development.

Before closing, I want to commend you for the first three "Munchhausen" stories in the February issue. If I. M. Alter's succeeding instalments are as good as the first two, I'll be satisfied with the rest of the magazine. The comedy is so novel, one can't help but smile out loud. I enjoyed the *Fourteenth Earth*, and likewise H. G. Wells' story, *Pollock and Porroh Man*. All told, it was one of your best issues, and let's hope all the subsequent ones will be as good.

JOHN P. PRATZKI,
2527 S. 10th St., St. Louis, Mo.

[Our magazine, in its editorials, virtually takes the ground that it is very unsafe to say that this thing or the other thing is impossible. The impossible is being achieved every day. For years it was impossible to make a wire of the metal tungsten. Now, when the impossible became a possibility, miles of tungsten wire are made every year and the electric light due to its use is now about four times as efficient as it was a few years ago. You are correct when you speak of skeptics being a hindrance to the advancement of civilization, although when you think of the way the world is going, there is every excuse for skepticism in this regard.

EDITOR.]

MORE ABOUT "THE REVOLT OF THE PEDESTRIAN"

Editor, AMAZING STORIES.

I read your magazine occasionally and enjoy many of its stories. I was peculiarly impressed by one in the February issue, *The Revolt of the Pedestrians*, by D. M. Keller. I like it because parts of it were really well written, almost classical, and it was written, it seemed to me, by one having a real warning to issue to society, though to many it might seem far-fetched.

I would like to see more stories by the same author. If he is a doctor, maybe he can give us one on some of the urgent problems of the day—the hidden forces that seem to put us mentally and physically at odds with our environing world and its limitations and chains.

Perhaps a bit educational—that everyone can understand, would help prevent such moral cataclysms that happen to Snyders and Grays or start a big drive against murders.

I. BALCAR,
123 Murray St., Elizabeth, N. J.

[This correspondent is one of a number who expresses high approval of *The Revolt of the Pedestrians*. There is one saving clause, however, in the City of New York, and that is that those who use the elevated railways and subways for getting about, get concentrated exercise in ascending and descending stairs. Benjamin Franklin made the remark when in France that he considered a mile going upstairs worth a number of miles on the level, yet he said that he did not use the stairs while they were there. We can consider that in the present era of automobiles, the elevated trains and subways are doing their part in saving the legs of the community.—EDITOR.]

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A GOOD CRITICISM OF "TEN MILLION MILES SUNWARD"

Editor, AMAZING STORIES:

Here you have another voice from faraway Oklahoma. Although only sixteen years of age and but a senior in high school, I have always taken much interest in your magazine. With one exception it is the only periodical which I ever really looked for in advance.

In your latest edition you published a story, *Ten Million Miles Sunward*, and asked your readers to find a certain flaw in its science. Now, to shift the amount of matter stated in the story would slightly change the axis of the earth. But would it throw it out of its orbit? No! Because at its present position, the centrifugal force generated by its annual journey around the sun exactly counteracts the gravitation toward that body. To either increase or decrease the speed of the earth *would* change its orbit, but the mere shifting of matter would not, because the two forces before mentioned would remain the same.

Also, Mr. Simeon, of Iowa, in the Discussions Department mentioned the fact that as the traveler in space exceeded the speed of light, he could not see the stars behind him apparently diminishing in size. And the editor stated that as the rays had been emitted long ago, the traveler would still be in their midst, and could still see them. So far, so good. But as he would be *overtaking* the light waves, he would either see the same stars in front, or if moving either too fast or too slow, the waves would be either too short or too long to be visible by the human eye. So in either case one could not see the stars behind.

I fear I am taking too much space, but there is one more thing I would like to say. Why not put out an accessory magazine for discussions, so that your readers could argue things out among themselves? As there is no better way to learn than to express one's own thoughts, this would be in keeping with your policy of spreading interest in science, and the cost should not rise so high as to be prohibitive to the readers.

MEARLE PROUT,
Mulford, Okla.

[It seems to us that there is nothing more to be said about the effect of enormously rapid motion on the seeing of stars. The planetary traveler will always be subject to the action of light rays and therefore will see the stars, however fast or in whatever direction he may travel, because the ether is charged, as it were, with their vibrations and in whatever direction our traveler goes he can never get away from them. If a man were traveling away from a locomotive with a speed exceeding that of sound waves in the air, and the engineer sounded his whistle, when the man was in advance of him, he would never hear it, but if the engineer had been sounding his whistle for sometime before the man started, then he would hear it, because he would be within the space occupied by the vibrating air, until his high speed carried him beyond the sound again.

What you say about *Ten Million Miles Sunward* expresses pretty nearly what Professor Luyten said in his criticism.—EDITOR]

DRYNESS IN STORIES—A BASIS OF FACT NECESSARY

Editor, AMAZING STORIES:

Being very interested in your publication, I feel I have something to say about it in relation to the literature contained and some suggestions to make about the appearance of it.

Your stories, with the exception of a few, are excellent and provide scientific facts in a palatable form. Some of your stories, however, have a dry and journalistic flavor about them, which renders them uninteresting and, in my opinion, poor for publishing in a magazine devoted to scientifiction. I refer to Jules Verne and H. G. Wells. To be sure, Wells has written some stimulating and inspiring tales, but his style ruins them. Scientifiction is uninteresting when it has become a fact. Your story, *The Master of the World*, by Jules Verne, has not become reality, but still imparts a sense of the practical. About the best story I have ever read in your magazine was *The Second Deluge*. This I am sure everyone of your readers perused with unwaning interest, for the reason that it was a revision of the popular theme of our old Noah's Ark stories that our mothers used to tell us on Sunday. If you don't do anything else, keep your stories scientific in detail and plot, if possible. Nothing is so boring as an unscientific scientific story. This world today wants a fact for everything that is told them and that a proven fact. About the most original story you have ever printed was *The Thought Machine*, by Ammanianus Marcellinus, and *The Revolt of the Pedestrians*, by David H. Keller. Both were highly interesting and well-written and also looked quite practical. . . .

I heartily agree with the plan submitted in your February Discussions Column by Watkin L. Evans as to the paper and cover.

Robert Eisenbach,
2135 Sacramento St., San Francisco, Cal.

[There is one peculiar statement in this letter to the effect that our type of fiction is uninteresting when it has developed into a fact. We think that we give enough interplanetary stories and others of that type to stay clear of this "fatal rock" of fact to which our correspondent objects; and then there is another statement in the letter, namely, that the world wants a fact for everything that's told it. You see, you have us between the horns of a dilemma.—EDITOR.]

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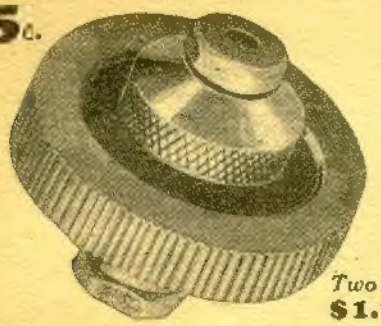

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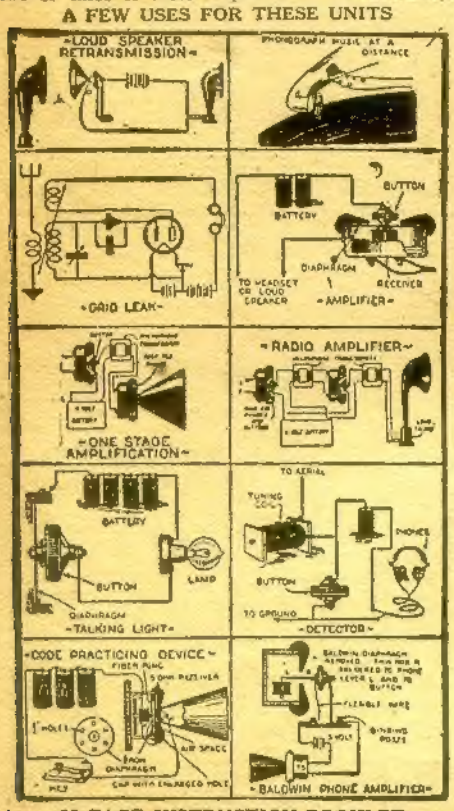

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COMMENTS ON OUR CORRESPONDENTS FROM AN EDITORIAL MIND—CRITICIZING THE CRITICS

Editor, AMAZING STORIES:

After concluding the perusal of the March issue of AMAZING STORIES, the idea came to my mind, why not criticize the critics? Anyone can realize the handicap you labor under in commenting on the "Discussion" pages. You are compelled to be diplomatic in order to preserve tranquility and render animosity impossible, but at times you must long to express yourself without any restrictions. Consequently, I will take upon myself the responsibility of answering the various letters as my mind dictates. Let us hope the trend of thought is in unison with yours. Pardon the egotistic attitude and any cynical criticisms that may occur.

Victor Lewise: Initial comment adequate, but would add, as personal advice, either strengthen your mind to digest horror stories or skip them entirely. They occur at rare intervals in this magazine.

G. P. Simeon: Thanks for the support. Glad to know a few of the stories meet with your approval, but bear in mind opinions vary and the multitude must be catered to collectively, not individually. The initial comment covers the starlight question. Radium, electrons and the fourth dimension are most assuredly scientific. Radium is the only visible one of the three conceptions. The electron hypothesis has been generally accepted and the fourth dimensional theory has a great number of loyal adherents.

Herman G. Gelfend: Extremely well pleased to see the younger generation interested in science.

L. G. Townsend: Initial comment adequate. H. G. Wells also deserves credit for the varied scope of his works. His is a marvelous intellect.

H. B. Hargrove: Initial comment adequate. According to your favorites, you are of a practical turn of mind with a leaning toward romance.

Maurice C. Volkman: Regarding your analysis of *War of the Worlds*, wish to differ with you. Even the most eminent psychologists are not gifted with the power to say what your reaction will be under stress. If it came to a practical demonstration, man might be worse than Wells depicted him. Due to the fact, there are less than ten people who fully understand Einstein's theory, we are elated to know you acquired the full knowledge from a hand manual.

Salvador A. Papason: Initial comment adequate.

P. Schuyler Miller: Admire your trend of thought. You are blessed with an open mind.

W. Pillino: Another thinker with an open mind—one to be commended.

M. Wm. Guerin: A little more literary experience and you will appreciate those you now condemn.

David Ireland: Initial comment adequate.

Alvin Moore: Initial comment entirely covers this.

T. A. Netland: Survival of the fittest is the fundamental basis of existence. If you are of the opinion that there is a higher standard, you are either without much worldly experience or deluded by the flowery treatises pertaining to the characters you mention. Your question as to a finer state of matter than ether shows lack of concentration on your part. The state you seek exists and manifests its existence in various manners, but has never been isolated for analysis. E. g., mental telepathy and hypnotism are recognized facts, but who will and can essay an hypothesis as to the medium employed. A thought is transmitted by purely mental force, it requires material substance to penetrate the recipient's consciousness. Call it what you will, it is matter. Various trade names have been applied, but your quality X is as good as any. What sleep is or why it comes is, as yet, not a matter of agreement. The only alternative one has is to note the changes during the procedure. Blood pressure is lowered, blood vessels in the brain are relaxed, although filled with blood, and they contract when sleep is disturbed or during dreams. Respiration and all vital processes have their activity reduced. Evidence is tending toward the assumption that there is some loosening of the connections between the different elements, such as increased resistance at the synapsis, to the passage of excitations, but the causation is conjectural. Nervous action is not abolished and the mind still gathers and creates impressions. The absolute UNCONSCIOUS state is never reached until death. It is obvious sleep is a state of relaxation conducive to the restoration of tissues. The effects of fatigues are nullified, cell bodies restored and waste products eliminated from the blood and muscle. This should prove its vital necessity, until a chemical substitute can be made to perform these duties. Would suggest you read *Psychology of Dreams*, by Dr. E. W. Walsh, as your questions are treated in detail in this volume.

Johnnie Walker: Unless one believes in the Einstein theory, your preordained destiny remains to be created by nobody but yourself. Whatever thoughts, sounds or actions you are responsible for in the past, are still here, although they have undoubtedly lost their identity. E. g., if you whistled a tune twenty years ago, the vibrations you created are still in existence. To prove this theory, capture your vibrations and lengthen or shorten them to their original state and your auditory members will reproduce them once again. As far as the future is concerned, there is no future. There is a certain amount of matter, never increasing or decreasing, at our disposal, which has been remodeled time and again through the countless aeons. The future in store is to assist in the present reconstruction, which in turn, will sooner or later go

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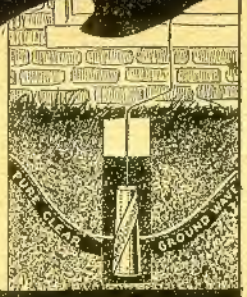

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back to its component parts to be remodeled once more.

George L. Reed: Initial comment adequate.

Ralph L. Myers: Initial comment adequate.

George A. Wines: The light waves do not catch up. The flyer merely caught up with the reflection waves that were already there. This is treated in reply to G. P. Simeon by the Editor.

Jack Darrow: Initial comment adequate.

H. Potter: Initial comment adequate.

As I have already consumed more space than necessary, I will terminate rather abruptly. Hoping this attempt affords you a bit of humor and sincerely trusting you are not to be deluged with letters complimenting me on my bloated ego. I rewrite copy in order to secure my daily bread and that fact makes it second nature for me to contradict other people's versions. So spare my humble efforts.

C. P. TOWNSEND,
Branford, Conn.

[We have published many comments in this column concerning our stories, but here one of our correspondents who possesses the editorial mind, gives *seriatim* criticism of many of our correspondents' letters, and we are sure that this communication will be greatly enjoyed by many of those who write to us and whose letters have appeared in this department of the magazine. In a sense, this is the most original letter we have ever published. Now for a gas attack by super-super-critics, on this super-critic.—EDITOR.]

CONCERNING "TEN MILLION MILES SUNWARD"—AN ADMIRER OF H. G. WELLS—WHAT THE CELEBRATED CRITIC, WILLIAM ARCHER, SAYS ABOUT HIM

Editor, AMAZING STORIES:

In the current (March) issue of AMAZING STORIES, the story which I considered by far the best was Geoffrey Hewelcke's *Ten Million Miles Sunward*. Not only was it well told and of absorbing interest, but it contained just enough science to give versimilitude to the tale. As to the accuracy of that science, I am not competent to judge. However, I am inclined to believe that the feat of diverting the earth from its orbit is beyond the realms of possibility. And even were such a stupendous project achieved, it could only result in universal chaos, for the planets of the solar system are so delicately balanced that the slightest deviation from its course of so huge a mass as the earth could not fail to precipitate a catastrophe. But I need not indulge further in such futile guesses, for by the time this letter is printed—if at all—Professor Luyten's solution will already have appeared; and I am not one to contest in the limelight with a Harvard don.

Therefore I shall turn to a subject with which I am more familiar; namely, the recent attempts of some misguided readers to disparage the stories of H. G. Wells. There is no need for me to defend Mr. Wells against these insignificant diatribes; but, for the edification of his detractors, let me quote what William Archer, in his criticism of *God, the Invisible King*, says of Mr. Wells: "No quest is too perilous for him, no forlorn hope too daring. He led the first explorers to the moon. He it was who lured the Martians to earth and exterminated them with microbes. He has ensnared an angel from the skies and expiscated a mermaid from the deep. He has mounted a Time Machine (of his own invention) and gone careering down the vistas of the Future."

This deserved tribute from a man who himself is prominent in English letters needs no elaboration. As Mr. C. P. Prescott remarked in a recent letter, the critics of H. G. Wells are more to be pitied than heeded. Were this magazine to contain but a single story in each issue, and that by H. G. Wells, I should continue to purchase it and consider myself amply repaid.

I notice that a number of readers are continually asking for reprints of certain masterpieces of scientifiction which have appeared in other magazines. In adding my request to theirs, I would specify the following: *On the Brink of 2000*, *After a Million Years*, and *Between Worlds*, by Garret Smith; *The Metal Emperor*, by A. Merritt; and *The Fire People*, by Ray Cummings. Of course, I do not suggest the reprinting of *all* these stories, but I would be highly gratified to see any one of them in this magazine.

A. L. GLASSER,
981 Forest Ave., New York, N. Y.

[*Ten Million Miles Sunward* is certainly a very clever story, and the little sequel, as it may be called, giving Professor Luyten's clear explanation of this possibility, makes it a little more valuable. Sometimes we feel that we learn more through our mistakes than from everyday instruction. Mistakes can be made to do good, sometimes exceeding the harm they may have done, and this story has done much to clarify the ideas of many readers on cosmic physics.

We wonder what some of the critics of Mr. Wells will think when they read the extract from the great English critic, William Archer.

THE BEST STORIES, BOTH SHORT AND SERIAL

Editor, AMAZING STORIES:

I am one of your faithful readers and have not missed a single story since AMAZING STORIES was born. I have attempted several letters, but have always thrown them away before giving you a chance to do the same.

I am very much interested in your "Discussions," and also enjoy reading Mr. Gernsback's editorials. My only kick, which I am going to get out of my system right now, is the date of the appearance of your publication. As soon as I received my February number I read about the Quarterly, also the statement that it would appear on January 20th. As soon as the twentieth came, I rushed to the newsstand for a copy. After a wait of a little over three weeks, I was able to secure one! I suppose you had some reason for it, but if the magazine is going to come out on February 13th instead of January 20th, I wish that you would at least give us a nearer "idea" (which is all your date seems to have been) of the day we can secure it.

The following are the best short stories you have published, in my opinion: *Whispering Ether*, by Charles S. Wolfe; *The Man Who Could Work Miracles*, by H. G. Wells; *The Man Who Could Vanish*, by A. Hyatt Verrill; *The Green Splotches*, by T. S. Stribling; *The Time Machine*, by H. G. Wells; *The Radio Ghost*, by Otis Adelbert Kline; *Around the Universe*, by Ray Cummings; and *Below the Infra Red*, by George Paul Bauer.

I have selected the following serials that stand out in my memory: *Station X*; *A Columbus of Space*; *First Men in the Moon*; *The Land That Time Forgot*; *Moon Pool*; *Treasures of Tantalus*, and *The Moon of Doom*. As for the last mentioned, I think it was great! I feel rather proud as it was written by one of my fellow townsmen. The day before the *Quarterly* came out, the Augusta paper carried an item about it, including a photo of Mr. Bell. Returning to the above stories, I think that *Land That Time Forgot* was the best, while *The Moon Pool* and *The Treasures of Tantalus* ran as close seconds.

I notice that one of your readers says that the books of Wells, Verne and other old writers can be secured at the bookstores and that we would rather have new stories. I notice an advertisement in your magazine: *The Master of the World*, price, $2.50. I would rather you would give us the "classics" in the magazine, because such are absolutely out of my reach otherwise in most cases.

I will close by asking for three things: More illustrations; more serials (I certainly cannot get along with just one a month!); and more stories by Edgar Rice Burroughs, A. Merritt, Prof. Servis (if he has written any that you have not hitherto published), Garret Smith, McLeod Windsor, Ray Cummings and Clement Fezandié. I beg that you grant just as much of the last request as possible.

G. Coleman Luck,
2006 Wrightsboro, Augusta, Ga.

[We would like to have had the chance given us to have thrown away your previous letter, because, judging by the present one, we would certainly never have done so. There has been considerable trouble in getting some of our various publications on the newsstands on time. There were various reasons, including a flooding of one of the establishments, due to a break in the water system, and this is only one of several things, which occasioned the unfortunate delay, so you will have to excuse what we may fairly term the unavoidable troubles of a publisher. Your specifications of the stories which you like are very interesting and we are glad to see that Mr. Bell received credit in one of your local papers for his very fine work. We have given a great many "classics" in our magazine and hope to continue doing so. We are sure that if you will look back on our work of the last few years, you will realize some wonderfully good things have been taken out of the past. We cannot say we have rescued them from oblivion, but as we have used them they have had a great effect in giving a very high standard to AMAZING STORIES. —EDITOR.]

AN UNNAMED APPROVER OF PEDESTRIANS

Editor, AMAZING STORIES:

I am writing to tell you of my interest in a story which appeared in the February issue of your magazine. *The Revolt of the Pedestrians*, by David H. Keller, M.D., seems particularly convincing in its imaginative conception. The "science" of the story is embodied in sufficiently simple terms for the usual reader and this veiled satire is most interesting.

I believe that most of the reasoning is true and logical, and it seems that such stories should stir automobilists to question the advisability of their chosen pastime. All in all, it is a thought-provoking story. Other stories of its caliber should strengthen your magazine, I think.

"An Interested Reader."
Gilmer, Texas.

[This letter gives a version of what we find from our correspondent to be quite a general appreciation of *The Revolt of the Pedestrians*. The contrast between the non-pedestrians with their atrophied legs and the charming girl who had not yielded to the general custom and so kept her physique intact, was certainly very well told and after all, there's a worthy moral in the story—we should utilize our powers, both muscular and mental, to obtain the best results.—EDITOR.]

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